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A revision of ant-mimicking spiders of the family Corinnidae (Araneae) in the Western Pacific

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Table of contents

Abstract . . . 6
Introduction . . . 6
Materials & Methods . . . 8
Character Morphology and Diversity . . . 9
Nomenclatural Issues . . . 21
Genus *Supunna* Simon, 1897 . . . 21
Miturga australiensis (L. Koch, 1873), new combination . . . 23
TAXONOMY . . . 23
Key to corinnid subfamilies (and similar genera) in the Pacific . . . 23
Corinnidae Karsch, 1880 . . . 23
Subfamily Corinninae Karsch, 1880 . . . 24
Creugas Thorell, 1878 . . . 24
Creugas gulosus Thorell, 1878 . . . 24
Medmassa Simon, 1887 . . . 28
Medmassa christae sp. nov. . . . 28
Subfamily Castianeirinae Reiskind, 1969 . . . 30
Key to Australian Castianeirinae genera and *Medmassa* . . . 30
Non-Australian Castianeirinae . . . 31
Corinnomma Karsch, 1880 . . . 31
Corinnomma severum (Thorell, 1877) . . . 32
Corinnomma javanum Simon, 1905 . . . 33
Melanesotypus gen. nov. . . . 35
Melanesotypus guadal sp. nov. . . . 35
Australian Castianeirinae . . . 38
Key to species of Battalus . . . 38
Battalus Karsch, 1878 . . . 38
Battalus spinipes species group . . . 39
Battalus spinipes Karsch, 1878 . . . 39
Battalus adamparsonsi sp. nov. . . . 41
Battalus byrneae sp. nov. . . . 46
Battalus diadens sp. nov. . . . 47
Battalus wallum sp. nov. . . . 51
Battalus baehrae species group . . . 55
Battalus baehrae sp. nov. . . . 55
Battalus bidgemia sp. nov. . . . 55
Battalus boolathana sp. nov. . . . 57
Battalus helenstarkae sp. nov. . . . 59
Battalus microspinosus sp. nov. . . . 61
Battalus rugosus sp. nov. . . . 62
Battalus zuytdorp sp. nov. . . . 64
Battalus semiflavus (Simon, 1896), comb. nov. . . . 66
Copa Simon, 1886 . . . 67
Copa kabana sp. nov. . . . 67
Disnyssus gen. nov. . . . 73
Disnyssus helenmirrenae sp. nov. . . . 74
Disnyssus judidenchae sp. nov. . . . 76
Iridonyssus gen. nov. . . . 77
Key to species of *Iridonyssus* . . . 78
Iridonyssus kohouti sp. nov. . . . 81
Iridonyssus auripilosus sp. nov. . . . 84
Iridonyssus formicans sp. nov. . . . 85
Iridonyssus leucostaurus sp. nov. . . . 88
Kolora gen. nov. . . . 90
Key to species of *Kolora* . . . 92
Kolora cooloola sp. nov. . . . 92
Kolora cushingae sp. nov. . . . 94
Kolora sauverubens (Simon, 1896), new combination . . . 95
Kolora lynneae sp. nov. . . . 99
Leichhardteus Raven & Baehr, 2013 . . . 101
Key to species of *Leichhardteus* . . . 104
Leichhardteus conopalpis Baehr & Raven, 2013 . . . 104
Leichhardteus badius Baehr & Raven, 2013 . . . 105

Leichhardteus bimaculatus Baehr & Raven, 2013 . . . 106
Leichhardteus albofasciatus Baehr & Raven, 2013 . . . 106
Leichhardteus evschlingeri sp. nov. . . . 108
Leichhardteus kroombit Baehr & Raven, 2013 . . . 109
Leichhardteus strzelecki sp. nov. . . . 112
Leichhardteus yagan sp. nov. . . . 112
Leichhardteus garretti Baehr & Raven, 2013 . . . 114
Leichhardteus terriirwinae Baehr & Raven, 2013 . . . 114
Leichhardteus reinhardi Baehr & Raven, 2013 . . . 114
Leptopicia gen. nov. . . . 115
Leptopicia bimaculata (Simon, 1896), new combination . . . 115
Nucastia gen. nov. . . . 117
Key to species of *Nucastia* . . . 118
Nucastia virewoods sp. nov. . . . 118
Nucastia culburra sp. nov. . . . 120
Nucastia eneabba sp. nov. . . . 122
Nucastia muncoonie sp. nov. . . . 125
Nucastia supunnoides sp. nov. . . . 126
Nucastia fuscus (Hogg, 1900), *nomen dubium*, new combination . . . 129
Nyssus Walckenaer, 1805 . . . 129
Species Groups . . . 130
Key to species of *Nyssus* . . . 130
Nyssus coloripes group . . . 131
Nyssus coloripes Walckenaer, 1805 . . . 131
Nyssus jaredwardeni sp. nov. . . . 137
Nyssus luteofinis sp. nov. . . . 138
Nyssus semifuscus sp. nov. . . . 140
Nyssus albopunctatus group . . . 142
Nyssus albopunctatus (Hogg, 1896), new combination . . . 142
Nyssus pseudomaculatus sp. nov. . . . 144
Nyssus jonraveni sp. nov. . . . 146
Nyssus avidus group . . . 148
Nyssus avidus (Thorell, 1881), new combination . . . 148
Nyssus insularis (L. Koch, 1873), new combination . . . 150
Nyssus yuggera sp. nov. . . . 152
Nyssus loureedi sp. nov. . . . 155
Nyssus paradoxus group . . . 157
Nyssus paradoxus sp. nov. . . . 158
Nyssus robertsi sp. nov. . . . 159
Nyssus wendyae sp. nov. . . . 162
Nyssus emu sp. nov. . . . 164
Ozcopa gen. nov. . . . 164
Key to species of *Ozcopa* . . . 167
Ozcopa colloffi sp. nov. . . . 167
Ozcopa chiunei sp. nov. . . . 170
Ozcopa mcdonaldi sp. nov. . . . 170
Ozcopa monteithi sp. nov. . . . 171
Ozcopa zborowskii sp. nov. . . . 172
Ozcopa margotandersenae sp. nov. . . . 174
Poecilipta Simon, 1897 . . . 175
Key to *Poecilipta* species . . . 177
Poecilipta janthina group . . . 178
Poecilipta janthina Simon, 1896 . . . 178
Poecilipta kgari sp. nov. . . . 180
Poecilipta gloverae sp. nov. . . . 183
Poecilipta samueli sp. nov. . . . 185
Poecilipta lugubris sp. nov. . . . 186
Poecilipta mandjelia sp. nov. . . . 187
Poecilipta marengo sp. nov. . . . 190
Poecilipta qunats sp. nov. . . . 191
Poecilipta venusta Rainbow, 1904 . . . 191
Poecilipta waldockae sp. nov. . . . 193
Poecilipta wallacei sp. nov. . . . 195
Poecilipta yambuna sp. nov. . . . 197

Poecilipta formiciforme (Rainbow, 1904), new combination 197
Poecilipta kohouti group 199
Poecilipta kohouti sp. nov. 199
Poecilipta metallica sp. nov. 200
Poecilipta ruthae Santana & Raven, sp. nov. 202
Poecilipta carnarvon group 204
Poecilipta carnarvon sp. nov. 206
Poecilipta contorqua sp. nov. 207
Poecilipta davidi sp. nov. 209
Poecilipta micaelae sp. nov. 211
Poecilipta elvis sp. nov. 213
Poecilipta harveyi sp. nov. 213
Poecilipta jilbadji sp. nov. 215
Poecilipta rawlinsonae sp. nov. 215
Poecilipta smaragdinea (Simon, 1909), new combination 219
Poecilipta tinda sp. nov. 219
Poecilipta zbigniewi sp. nov. 220
Ticopa gen. nov. 221
Key to species of *Ticopa* 223
Ticopa australis sp. nov. 224
Ticopa carnarvon sp. nov. 225
Ticopa chinchilla sp. nov. 227
Ticopa dingo sp. nov. 230
Ticopa hudsoni sp. nov. 232
Ticopa longbottomi sp. nov. 237
Summary of Taxonomic Changes 237
Acknowledgements 238
References 239
Appendix 1 243
Appendix 2 248

Abstract

The Corinnidae of the western Pacific are revised. The formerly sparassid genus *Anchognatha* Thorell, 1881, and the gnaphosid genus *Battalus* Karsch, 1878, are transferred to the Castianeirinae. The Corinninae include only the introduced *Creugas gulosus* Thorell, 1878 and *Medmassa christae* sp. nov. from the northern Torres Strait islands. *Medmassa pallipes* (L. Koch, 1873) and *Medmassa pusilla* Simon, 1896 are newly synonymised with *Creugas gulosus.* The Castianeirinae from the Western Pacific including Australia includes *Battalus* Karsch, 1878, *Copa* Simon, 1886, *Leichhardteus* Raven & Baehr, 2013, *Nyssus* Walckenaer, 1805, *Poecilipta* Simon, 1897, and eight new genera: *Disnyssus* gen. nov., *Iridonyssus* gen. nov., *Kolora* gen. nov., *Leptopicia* gen. nov., *Melanesotypus* gen. nov., *Nucastia* gen. nov., *Ozcopa* gen. nov. and *Ticopa* gen. nov. *Battalus* includes *B. adamparsonsi* sp. nov., *B. baehrae* sp. nov., *B. bidgemia* sp. nov., *B. byrneae* sp. nov., *B. diadens* sp. nov., *B. helenstarkae* sp. nov., *B. microspinosus* sp. nov., *B. rugosus* sp. nov., *B. spinipes* Karsch, 1878, *B. wallum* sp. nov., *B. zuytdorp* sp. nov. and *B. semiflavus* (Simon, 1896), new combination (transferred from *Medmassa*). *Copa*, an otherwise African and Sri Lankan genus, includes *C. kabana* sp. nov. *Disnyssus* gen. nov. includes *D. helenmirrenae* sp. nov. and *D. judidenchae* sp. nov. *Iridonyssus* gen. nov. includes *I. auripilosus* sp. nov., *I. formicans* sp. nov., *I. kohouti* sp. nov. and *I. leucostaurus* sp. nov. *Kolora* gen. nov. includes *K. cushingae* sp. nov., *K. cooloola* sp. nov. and *K. lynneae* sp. nov., and *K. sauverubens* (Simon, 1896) new combination (transferred from *Corinnomma* Karsch, 1880). *Leichhardteus* includes *Leichhardteus yagan* sp. nov., *Leichhardteus evschlingeri* sp. nov., *Leichhardteus strzelecki* sp. nov., as well as eight recently described species. *Leptopicia* gen. nov. includes only *Methesis bimaculata* (Simon, 1896) new combination (transferred from *Methesis* Simon, 1896). *Melanesotypus guadal* gen. et sp. nov. is described from the Solomon Islands. *Nucastia* gen. nov., includes *N. culburra* sp. nov., *N. eneabba* sp. nov., *N. muncoonie* sp. nov., *N. supunnoides* sp. nov. and *N. virewoods* sp. nov.; *Medmassa fusca* Hogg, 1900 is transferred to *Nucastia* but is considered a *nomen dubium*. The genera *Anchognatha* and *Supunna* Simon, 1897 are junior synonyms of *Nyssus*, which includes *Supunna albopunctatus* (Hogg, 1896), *Anchognatha avida* Thorell, 1881, *Nyssus coloripes* Walckenaer, 1805, *N. emu* sp. nov., *Agroeca insularis* L. Koch, 1873 (from Fiji and the Solomon Islands), *N. jaredwarden* sp. nov., *N. jonraveni* sp. nov., *N. loureedi* sp. nov., *N. luteofinis* sp. nov., *N. paradoxus* sp. nov., *N. pseudomaculatus* sp. nov., *N. robertsi* sp. nov., *N. semifuscus* sp. nov., *N. wendyae* sp. nov. and *N. yuggera* sp. nov. *Supunna funerea* (Simon, 1896) and *Supunna albomaculata* (Rainbow, 1902) are junior synonyms of *Nyssus albopunctatus; Supunna picta* (L. Koch, 1873) and *Storena auripes* Rainbow, 1916 are junior synonyms of *Nyssus coloripes* Walckenaer, 1805. *Ozcopa* gen. nov. includes *O. chiunei* sp. nov., *O. colloffi* sp. nov., *O. margotandersenae* sp. nov., *O. mcdonaldi* sp. nov., *O. monteithi* sp. nov. and *O. zborowskii* sp. nov. *Poecilipta* includes *P. carnarvon* sp. nov., *P. contorqua* sp. nov., *P. davidi* sp. nov., *P. elvis* sp. nov., *P. formiciforme* (Rainbow, 1904) comb. nov. (transferred from *Corinnomma*), *P. gloverae* sp. nov., *P. harveyi* sp. nov., *P. kgari* sp. nov., *P. samueli* sp. nov., *P. janthina* Simon, 1896, *P. kohouti* sp. nov., *P. lugubris* sp. nov., *P. marengo* sp. nov., *P. metallica* sp. nov., *P. micaelae* sp. nov., *P. qunats* sp. nov., *P. rawlinsonae* sp. nov., *P. ruthae* Santana & Raven, sp. nov., *P. smaragdinea* (Simon, 1909) new combination (transferred from *Supunna*), *P. tinda* sp. nov., *P. venusta* Rainbow, 1904, *P. waldockae* sp. nov., *P. wallacei* sp. nov., *P. yambuna* sp. nov., and *P. zbigniewi* sp. nov. *Ticopa* gen. nov. includes *T. australis* sp. nov., *T. carnarvon* sp. nov., *T. chinchilla* sp. nov., *T. dingo* sp. nov., *T. hudsoni* sp. nov., and *T. longbottomi* sp. nov. For comparative purposes, males of the South-east Asian *Corinnomma severum* (Thorell, 1881) (the type-species) and *C. javanum* Simon, 1905 are figured and supplementary notes provided. *Liocranum australiensis* L. Koch, 1873 is transferred from *Medmassa* to *Miturga* where it is a *nomen dubium*.

One hundred and eight species are treated in this work, of which 77 are new, 21 existing species are recognised; five existing genera are recognised, two are placed in synonymy, eight new genera are added; and one species is transferred to Miturgidae and another is listed as a nomen dubium. The Australian corinnid fauna includes 14 genera and 97 species.

Keywords: Corinnidae, taxonomy, Australia, Pacific, distribution, ant-mimicry

Introduction

Throughout Australia and parts of New Zealand, small fast-moving spiders catch the eye as they move in a stop-start fashion, often in sunny patches. Many of these spiders belong to the subfamily Castianeirinae (family Corinnidae) which show diverse forms of mimicry, mostly of ants, sometimes of wasps, and possibly even of other spiders (Cushing 2012). They are taken commonly in pitfall traps in open forest, heath and desert but are less often taken in rainforest, perhaps reflecting the diversity of their insect models.

In the collections of the Queensland Museum (in 2006), Corinnidae were represented by over 2200 samples and rank 9th largest (after the Lycosidae with 6146, Salticidae with 4942, Theridiidae with 4250, Oonopidae with 3694, Araneidae with 3681, Zodariidae with 3640, Gnaphosidae with 3564, and Linyphiidae with 2448).

Significantly, of those families, only the Lycosidae and Zodariidae, with Oonopidae fast becoming so, can claim to be substantially revised and documented in Australia.

The family status of the Corinnidae has had at least one "false start" with Lehtinen (1967) not presenting a convincing or substantive argument on which to found the group. Lehtinen (1967: 292) noted that Corinnidae were "characterised by the lack of distinct tarsal trichobothria, a strong trend towards sclerotisation of the abdomen and especially in the epigynal area. The colulus is well sclerotised, more or less triangular, and never bipartite as in true clubionids. The male palpal tegulum usually tapers gradually towards the embolus and the ejaculatory duct is more or less coiled within the proximal part of the tegulum. The maxillae are commonly of the Zodarid [*sic*.] type, that is, without lateral excavations, but with medially tapering apex. (...) It is worth emphasizing here that feathery hairs are totally lacking in all known evolutionary lines of the Zodariides, although their ancestors probably had this type of hairs, too." As noted here (see Morphology, below), tarsal trichobothria are universally present in Castianeinae and Corinnindae, and feathery hairs are almost universal as well.

The insubstantial nature of Lehtinen's elevation of the Corinnidae was long rejected by arachnologists. Subsequently, Wunderlich (1986) retested the question of the group's significance and the family was recognised. However, since then, Bosselaers & Jocqué (2002) transferred the liocranid subfamily Phrurolithinae to the Corinnidae, but left both the Liocranidae and the Corinnidae without synapomorphies. Bosselaers & Jocqué (2002) is not followed here, firstly because a perfectly good synapomorphy of the Corinnidae, the triad of spigots on the PMS of females (Ramírez *et al*. 2000; Bonaldo 2000), was violated. Secondly, the taxa included in the data set of Bosselaers & Jocqué (2002) were vastly inadequate (see Raven & Stumkat 2005), and key taxa (e.g., *Oedignatha* Thorell, 1881) were incorrectly scored with several anomalies in coding characters (e.g., *Oedignatha* and retrocoxal hymen), which renders the analysis unrepresentative. And third, Ramírez (2014) elevated the Phrurolithinae to family and redefined the Corinnidae and Liocranidae.

Of the two genera of concern in that change, Ramírez (2014), which came to my attention when this manuscript was near completion, transferred *Orthobula* Simon, 1897 to the newly elevated Phrurolithidae and *Oedignatha* and *Koppe* Deeleman-Reinhold, 2001 to the Liocranidae. These genera are excised and will be further treated in a revision (Raven, in prep.). Of the Phrurolithidae, Australia has a diverse fauna of undescribed species of *Orthobula* and *Sphingius* Thorell, 1890.The paucity of taxonomic arachnological research, especially in the Australian region, had led to the Corinnidae not receiving serious attention for at least a century. A major revision of corinnids was that of Reiskind (1969) on the Castianeirinae of North and Central America, and that of Bonaldo (2000) on the Corinninae of the Americas. However, Penniman (1985, unpublished thesis) examined the relationships of *Scotinella* Banks, 1911 (now Phrurolithidae) and putatively related corinnids. Deeleman-Reinhold (2001), in her revisions of Southeast Asian forest spiders, gave a substantive basis for grouping the closely related Australian corinnids. Subsequently, Haddad (2005, 2006a, b, 2007, 2009, 2012a, b, 2013a, b, c), Haddad & Bosselaers (2010), Haddad & Lyle (2008), Haddad *et al*. (2011), and Lyle and Haddad (2006, 2009, 2010) have been revising the Afrotropical corinnids (many of which are Trachelidae, a family not known in Australia), which is also putting the Australian taxa into context. Baehr & Raven (2013) were contractually obligated to publish early one new genus of Corinnidae, *Leichhardteus* Raven & Baehr, 2013, and included eight new species.

At the outset of this study (1998), the Australian Corinnidae numbered nine genera (Roewer 1955; Platnick 1998), of which four (*Aristerus* Simon, 1909, *Asadipus* Simon, 1897, *Centrothele* L. Koch, 1873, and *Stratius* Simon, 1898) were soon transferred by Platnick (2000) to the Lamponidae. Of the balance, only *Supunna* Simon, 1897 (in synonymy), *Poecilipta* Simon, 1897 and *Medmassa* Simon, 1887 are here considered present; species then included in *Corinnomma* Karsch, 1880 and *Methesis* Simon, 1896 are here transferred *either to Poecilipta or Leptopicia*, gen. nov., respectively. However, three genera are here transferred from other families: *Nyssus* Walckenaer, 1805 from the Agelenidae, *Anchognatha* Thorell, 1881 from the Sparassidae (into the synonymy of *Nyssus)* and *Battalus* Karsch, 1878 from the Gnaphosidae. Hence, the total species complement of Australian Corinnidae was actually 19 species in 7 genera.

At the species level, apart from the early description of *Nyssus coloripes*, most (60%) of the Australian corinnids were described between 1896 and 1909. Regretably, many were based on juveniles or females and for some the type is lost. A more detailed account is given below in Nomenclatural Issues.

In this study, eight species are placed in synonymy, and eight new genera raises the Australian corinnids to 14 genera. The total number of Australian corinnid species is clearly well over 100. However, only a nominal 108 (of which 102 are valid and 98 are Australian) are treated here and in Baehr & Raven (2013), pending future generic revisions. Where more species are known than treated here, comprehensive genus diagnoses are given.

Time constraints and the need to remain visibly productive have forced a different approach to revisionary taxonomy in these papers. Previously, an all-encompassing monograph describing all Australian barychelid species from all collections has been published (Raven 1994). However, the completion of such a monograph was delayed substantially, simply by the discovery of a male of a species, which up to that point was only known from females; the male proved the species was misplaced using only the female. Extensive changes were then needed throughout the manuscript. Equally, given the broad scope of an ABRS funded three year grant (in 1995) to Raven focussed on the Clubionidae, Corinnidae, Ctenidae, Cycloctenidae, Miturgidae, Pisauridae, Toxopidae, Zoridae, the time that new manuscript names in collections are unpublished becomes of concern. Hence, all of the relevant collections and any material listed here have been examined and genus level revisions of groups before compiling this work.

Materials & Methods

Abbreviations. Morphology: Abbreviations are standard for the Araneae; in addition, RCH, retrocoxal hymen, a pallid unsclerotised zone retrolaterally on coxa I (Fig. 48e), introduced by Raven *et al*. (2002); RTA, retrolateral tibial apophysis; CO, copulatory orifice; FD, fertilisation duct. Leg measurements are given in the descriptions as leg 1: femur, patella, tibia, metatarsus (absent in palp), tarsus, total. Spine counts on lateral and ventral surfaces are dependant on the angle of viewing; hence, absolute differences in, for example, the ventral count on metatarsi III & IV should not be taken as significant as, in some cases, a ventrolateral spine may have been scored as lateral in one case and ventral in another. A male and female from the same locality are sought for holotype and allotype, respectively; however, in some cases, specimens that are in better condition, and hence better represent the taxon, come from other localities. Juveniles collected with adults are assumed to be conspecific but should not be considered paratypes; they are included as an indication of activity and maturation periods. **Museums:** AMS, Australian Museum, Sydney; BMNH, British Museum of Natural History, London; CAS, California Academy of Science, San Francisco; CVIC, Insect Collection of Central Victoria, Ballarat; JM, John Murphy Collection, London; LKCNHM, Lee Kong Chian Natural History Museum (formerly Raffles Museum of Biodiversity Research), National University of Singapore; MCG, Museo Civico di Storia Naturale Giacomo Doria, Genoa, Italy; MNHN, Museum National d'Histoire Naturelle, Paris; MVIC, Museum of Victoria, Melbourne; QM, Queensland Museum, Brisbane; SAMA, South Australian Museum, Adelaide; TMAG, Tasmanian Museum and Art Gallery, Hobart; WAM, Western Australian Museum, Perth. **Localities and collectors:** BAAM, Biodiversity Assessment and Management, Brisbane; Ck, creek; Is., Island; Mtns, Mountains; NP, National Park; QMP, Queensland Museum Terrestrial Biodiversity staff; Ra, Range; Rd, Road; Res Stn, Research Station; SF, State Forest; Stn, Station; Tbld, Tableland.

Digital photographs were taken with either a Nikon Coolpix 880 or Nikon Coolpix 5400, hand-held on the eyepiece of a Zeiss Stemi SV11 stereomicroscope or Leica SZ, resolution being 3 and 5 megapixels, respectively, or with a Leica DFC 500 and the image stacking software program Zerene Stacker (http://www.zerenesystems.com/). Epigynes were drawn with a camera lucida on a Zeiss Stemi SV6. Scanning electron micrographs were done either on a Hitachi S530 or a Hitachi TM1000. When the left palp of the palp was absent or unsuitable for illustration, the right palp is figured and the caption for the figure is noted as mirrored.

Throughout the tortuous path of this work (begun in 1998), both computing power and human skills have progressed remarkably; this change is reflected graphically in illustrations. Initially, merely scanning analogue images into a digital format was primitive; simple acts like rotating an image were fraught with system crashes; composing images digitally was a nightmare. Finally, reasonable prices and high quality images are now routinely obtained using high quality cameras on microscopes and associated image stacking graphic software. Equally, the publication of the undiscovered artistic talents of Wendy Hebron were slowed by my need for monographic treatment. As a result, different kinds and qualities of images are historically preserved: the simplest are mine, etched carapaces are those of Mrs Helen Stark, and the detailed palps and epigynes are of Wendy Hebron. Significantly, neither numerical cladistic analyses nor molecular studies contributed to this product. Both could, of course, enhance it but the taxonomic basis for both must come first.

Identification of live animals. With the growing interest in macrophotography, identifications of species from photographs are often sought. Apart from the obvious need to examine genitalia, the Castianeirinae provide an additional impediment in this exercise. As shown graphically (Fig. 75a, b) by the difference in *Nyssus*

jaredwardeni sp. nov., the reflective hairs on the carapace and abdomen show substantial and unnerving differences from the freshly dead specimen to the same specimen after some time in alcohol.

Character Morphology and Diversity

Mimicry. Before discussing the morphological variation of each character, it is worthwhile examining aspects that appear to be driving some of the morphological diversity in the Australian Castianeirinae; Reiskind (1969) did this with the North American Castianeirinae.

The most striking form of morphological mimicry seen here is in the strongly ant-like genus *Melanesotypus* gen. nov. (Figs 14, 15), which although not yet recorded from Australia, is here described from the nearby Solomon Islands.

The Australian Castianeirinae, and presumably those of other continents, show striking resemblance in body pattern, morphology and overall behaviour to at least three insect groups. This is regarded as Batesian mimicry; the mimicry is giving the mimic some degree of protection from predators.

In *Nyssus coloripes*, the behaviour described by Jackson & Poulsen (1990, as *Supunna picta* L. Koch, 1873) was studied in New Zealand, where the spider has been introduced. In southeast Queensland, the behaviour is clearly mimicry of some pompilid wasp (e.g., *Auplopus, Priocnemis*) which has orange front legs and black back legs. The sudden movement with trembling front legs, stopping and restarting in erratic directions across the ground, are the same kinds of actions noted by spider wasps (Pompilidae) hunting spiders to provision their nest.

On the other hand, *Nyssus albopunctatus* (Hogg, 1896) and other black maculate species of *Nyssus* mimic female mutillid wasps (a mimicry also noted by Reiskind 1969 in some North American *Castianeira* Keyserling, 1879), which actively hunt on the ground and have a similar pattern; the pattern of black spiders with paired white spots (Figs 79b, 80c, 81e, f, 88d) is seen in at least four Australian genera (*Nyssus*, *Battalus*, and to a lesser extent *Leichhardteus* Raven & Baehr, 2013, *Iridonyssus* gen. nov. and *Nucastia* gen. nov.), as well as the Sri Lankan genus *Coenoptychus* Simon, 1885 (Deeleman-Reinhold 2001) and the Afrotropical genus *Graptartia* Simon, 1896 (Haddad 2004).

Strong mimicry of ants, however, seems restricted to *Melanesotypus* gen. nov., *Poecilipta* Simon, 1897, *Kolora* gen. nov., and *Iridonyssus* gen. nov., and to a lesser extent, *Nucastia* gen. nov. In these five genera, mimicry affects at least eight characters: carapace shape, cuticle sculpturing, body setal structure, colour pattern, dorsal abdominal scute, leg length, behaviour (principally speed but also resting behaviour, leg movements and abdomen bobbing), and leg morphology, mainly of femur III and IV. In *Nucastia supunnoides* sp. nov. (Fig. 71e), the abdominal pattern resembles that of *Nyssus coloripes* Walckenaer, 1805 (Fig. 72a–d) and it also resembles the diagnostic pattern of species of the Ant spider genus *Storena* Walckenaer, 1805 (Zodariidae, Jocqué & Baehr 1992): dark brown or black abdomen with 2–6 pairs of white or yellow spots.

Carapace Shape. Five distinctly different character shapes are identifiable in the Australian Castianeirinae. In *Poecilipta* (Figs 107f, 108a), *Kolora* gen. nov. (Fig. 16e), *Leptopicia* gen. nov. (Fig. 63a), and *Nucastia* gen. nov. (Fig. 65c), the carapace is about or more than 1.5 times longer than wide; in others, it varies between about 1.2 and 1.46. The narrower carapace occurs in the stronger mimics.

Profile (Figs 1–3). The lateral carapace profile of all, save *Melanesotypus* gen. nov., is that of a vertical or sloping clypeus, a slightly arched caput remaining more or less flat to just anterior to fovea, where a saddle is sometimes present; the fovea is often on the sloping posterior edge. The steepness of the posterior and to a lesser extent, anterior, slope of the carapace seem informative.

Cuticle sculpturing. In most genera, the leg cuticle is smooth; in some (e.g., *Iridonyssus kohouti* sp. nov.) the cuticle is irregularly rugose (Fig. 6d). None have been found with any evident regularity of pattern in cuticle sculpturing except, for example, in *Poecilipta*, on the carapace margins.

Eyes. Row curvature. In all Australian corinnids, viewed from above, the front row is straight to clearly recurved (Fig. 16a–f). Viewed from above, in most genera, the front row of eyes lies behind the clypeus (Fig. 16a–f). However, in a number of genera, the larger AME project forward and, in *Nucastia*, the entire row projects forward, obscuring the clypeal edge from above (Fig. 1e). In all corinnids treated here, with two known exceptions (*Disnyssus* gen. nov. and *Melanesotypus*), the back row is procurved. In *Melanesotypus*, the back row is clearly recurved and the row is spread wider than the front row. In *Disnyssus* gen. nov., the PME are set anterior to the

posterior edges of the PLE, and the row appears straight to slightly recurved (Figs 16a, 37a–c). In contrast, of the 12 Castianeirine genera of Southeast Asia, Deeleman-Reinhold (2001) reported five genera with a recurved posterior eye row.

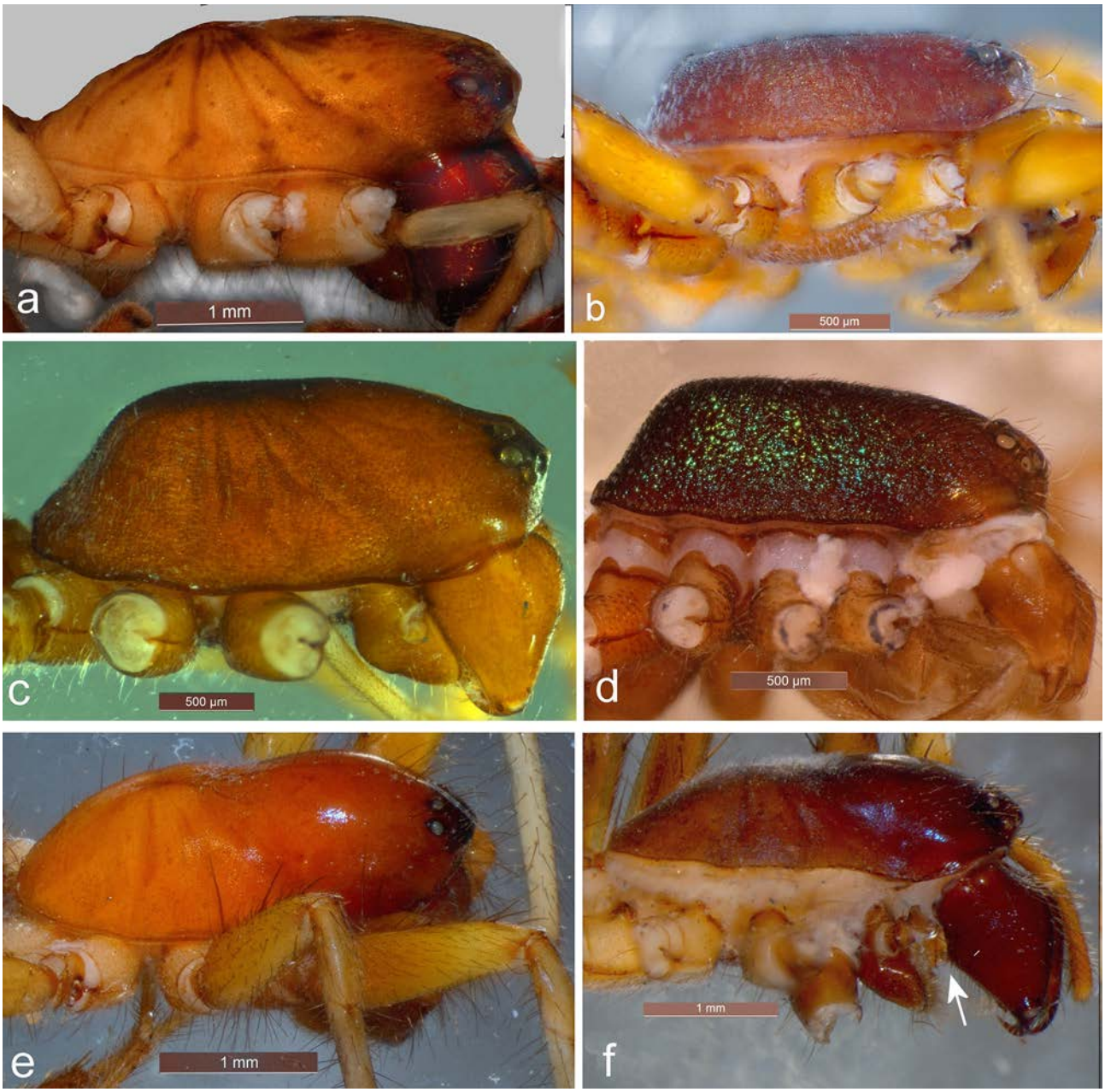


FIGURE 1. Castianeirinae, comparative lateral carapace: a, *Battalus boolathana* sp. nov., allotype female, WAM 98/1667; b, *Disnyssus helenmirrenae* sp. nov., male, QM S50880; c, *Nyssus yuggera* sp. nov., holotype male, QM S29578; d, *Iridonyssus kohouti* sp. nov., female, QM S50051; e, *Nucastia* sp., male, WAM T74052; f, *Nucastia supunnoides* sp. nov., showing retrolateral cheliceral process (arrow), female, QM S44071.

Eye group size. In most genera, the eye group occupies between two-thirds and the full cephalic width through the eye group (e.g., Figs 16a–d, f; 37c). However, in *Kolora* (Fig. 16e) and *Nucastia* (Fig. 65c), the group is only about 0.4 of the headwidth at that point.

Eye sizes, shape and colour. In a number of genera, the AME are noticeably larger (e.g., Figs 11a, 63a); otherwise eye sizes and colour tend to be similar; all eyes are round and raised when viewed from in front of the lens.

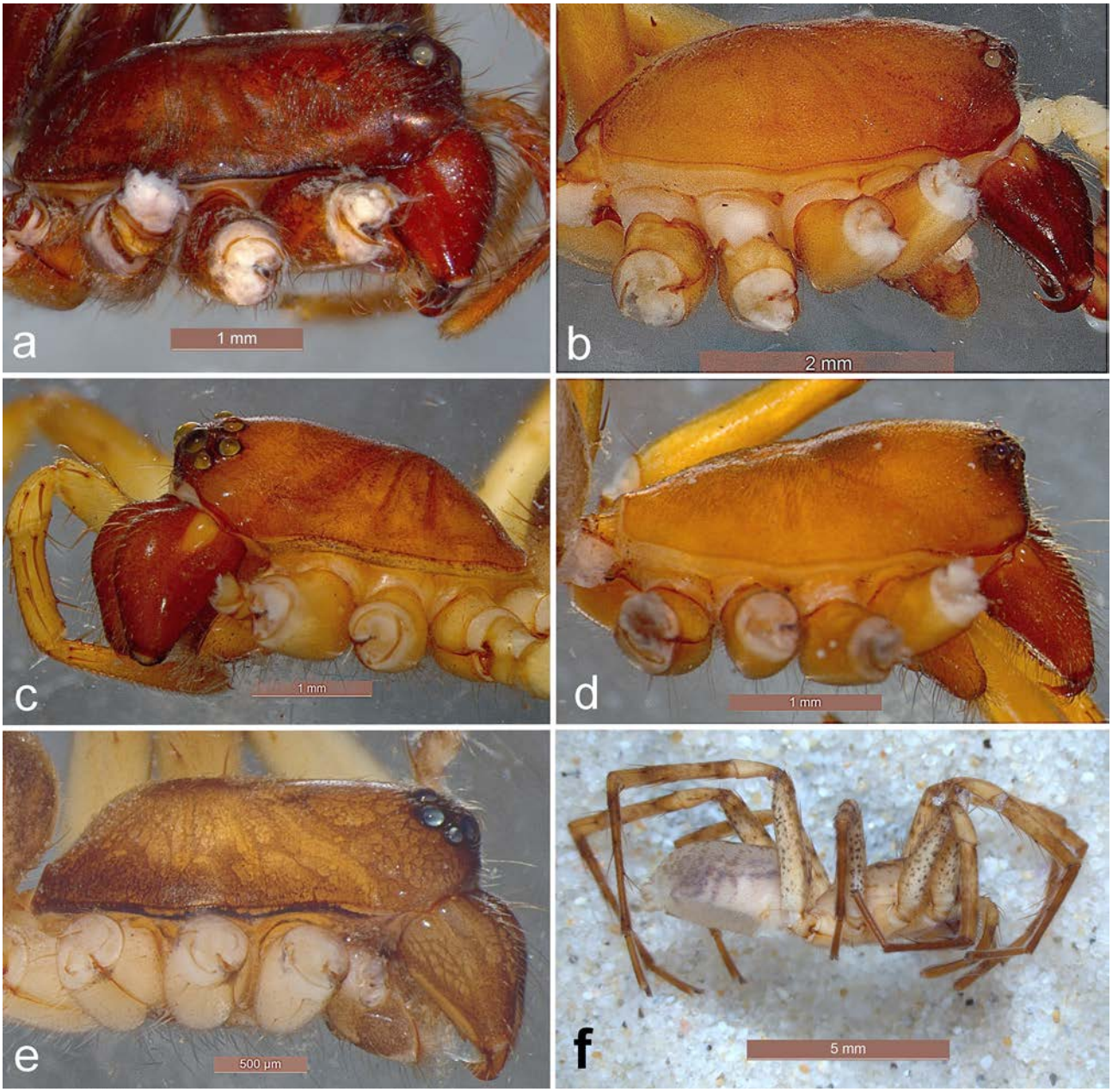


FIGURE 2. Castianeirinae with *Medmassa*, comparative lateral carapace: a, *Nyssus coloripes* Walckenaer, 1805, female, QM S32651; b, *Leichhardteus albofasciatus* Baehr & Raven, 2013, male QM S25002; c, *Medmassa christae* sp. nov., holotype female, QM S44071; d. *Kolora cushingae* sp. nov., female, QM S39286; e, *Ozcopa monteithi* sp. nov., female, QM S41071; f, *Ticopa australis* sp. nov., female, QM S31513.

Tapetum. None of the material here examined had an evident tapetum, which is not to say a tapetum was absent, but preservation is often critical to its detection in preserved specimens. Most taxa are diurnal. However, *Leichhardteus* and *Battalus* have been taken hunting at night.

Chelicerae (Fig. 4a–f). Most commonly, the chelicere are well developed with a tear-shaped low boss. In some genera, the anterior lateral corners of the carapace are slightly enlarged over the boss.

Fang shield mound (Figs 4d–f, 20f, 22c, 24e, 47b, c, 48c, 128e, f, 129c, 131b, c, 133b). In most Australian Castianeirines as well as the Asian *Corinnomma*, the anterior promarginal base of the fang has a low semi-ovoid shield on the paturon bearing several setae; the setae are strongly ornate in females and hardly modified in males. In his revision of 67 species of North American Castianeirinae, Reiskind (1969) reported this is only in *Castianeira cincta* (Banks, 1929), *Castianeira dentata* Chickering, 1937 and *Castianeira trimac* Reiskind, 1969. In female *Ticopa* gen. nov. and, to a lesser extent in *Battalus*, the setae are strongly enlarged, spine-like and serrate. In

Battalus, the setae have enlarged to short conical spines (e.g., Fig. 20f). These are evident even under low power light microscopy. Platnick (2000) reported setae in a line on the anterior edge of the chelicerae in Lamponidae. In the castianeirines, the setae are always on a shield and not quite as neatly linear as shown by Platnick (2000). Males show no unusually enlarged setae on the fang shield. Ramírez (2014) referred to this as the cheliceral promargin pronounced mound (character 56) and the setae/spines as promarginal rake setae (character 55), whereas the setae referred to by Platnick (2000) are termed "whiskers". In *Copa*, *Kolora*, *Leptopicia, Nucastia, Nyssus, Poecilipta*, and *Ozcopa*, the mound is present in females but the setae are not so strongly modified as in *Battalus* and *Ticopa*.

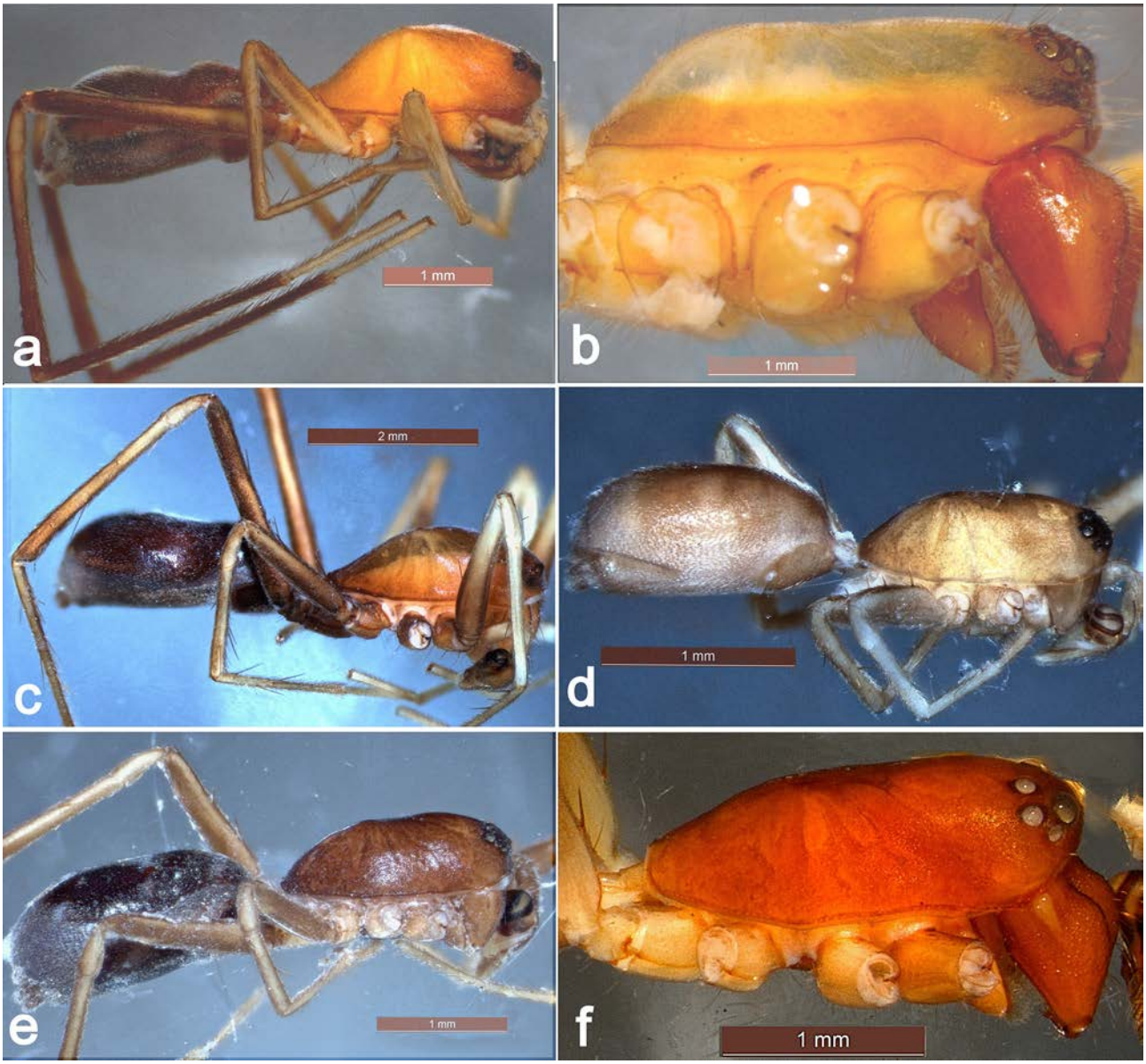


FIGURE 3. Castianeirinae, comparative lateral carapace: a, *Poecilipta janthina* Simon, 1896, male, QM S22719; b, *Copa kabana* sp. nov., male, QM S31639. c–e, *Poecilipta*, c, *P. wallacei* sp. nov., holotype male, QM S32637; d, *P. gloverae* sp. nov., paratype male, QM S29488; e, *P. lugubris* sp. nov., holotype male, AM KS11430; f, *Leptopicia bimaculata* (Simon, 1896), male, MNHP.

Fang and groove (Figs 4a–c, 5a, b). Most genera show little modification of the fang and groove. However, in *Battalus* (Fig. 25d), especially males, the fang is noticeably long and the groove, rather than being short and transverse, is long and diagonal. Some genera (e.g., *Nucastia, Kolora,* Figs 1f, 2d) have a raised hirsute or spinose ridge on the mid-posterior face of the paturon. Furrow dentition is commonly the putatively plesiomorphic three promarginally and two retromarginally.

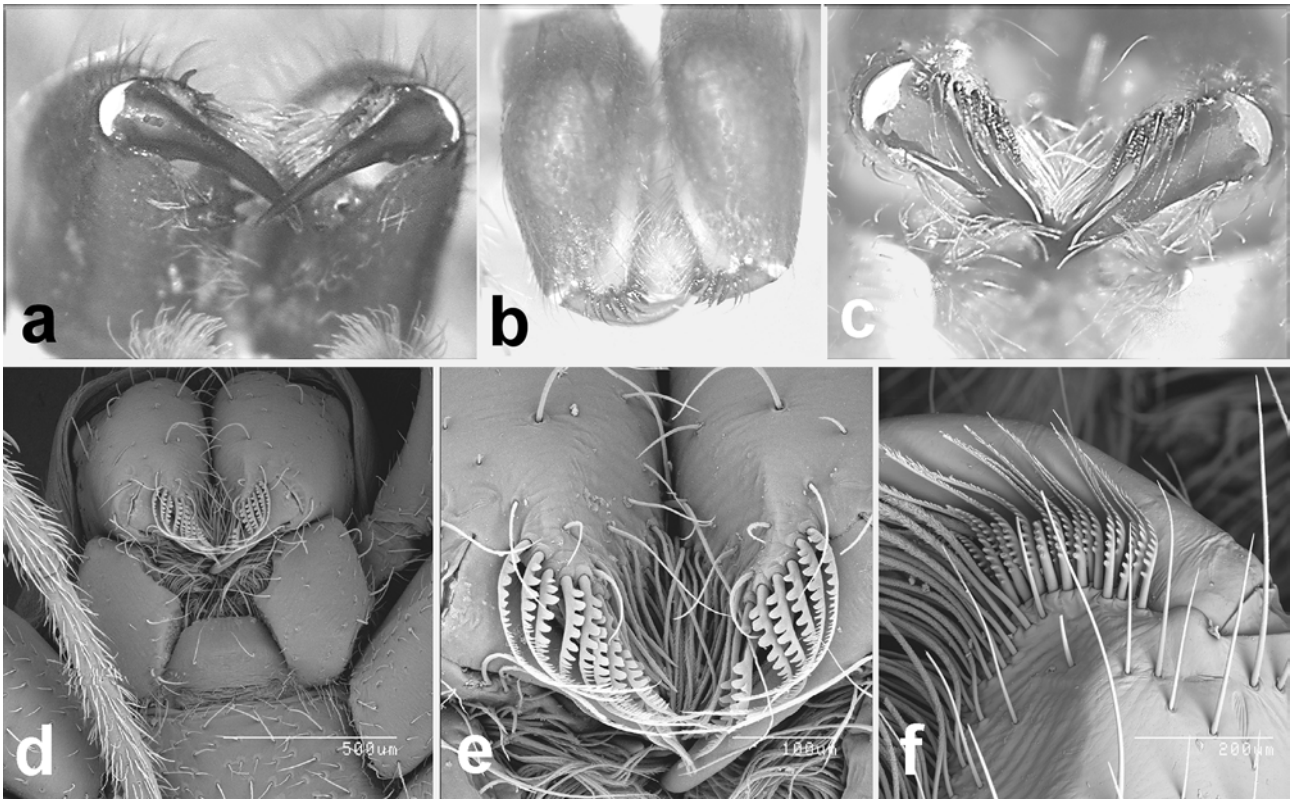


FIGURE 4. Castianeirinae, female, chelicerae showing fang shield and serrate bristles or spines: a, b, *Ticopa dingo* sp. nov., a, ventral view; b, prolateral view; c–e, ventral views; c, *Battalus adamparsonsi* sp. nov.; d, e, *Iridonyssus kohouti* sp. nov.; f, *Nyssus coloripes* Walckenaer, 1805, anterior view.

Maxillae (Fig. 5a–d). The shape is roughly rectangular with rounded corners; the scopula is small and set on the inner distal diagonal truncation. The cross-section is ventrally convex with no ridges, keels, or grooves; the outer edge is convex. In the liocranids *Koppe* Deeleman-Reinhold, 2001 and *Oedignatha* (Fig. 5b, d), the maxillae are strongly defined and have a distinct transverse groove, as in some gnaphosoids. A serrula is present in all taxa as a long curving line.

Labium (Fig. 5a–d). This is about as long as wide or wider, with no marginal grooves or median ridges; the cross-section is domed. Basally, the labium is constricted.

Sternum (Fig. 5a–d). Roughly cordate, weakly to strongly domed in cross-section, with little or small intercoxal extensions. In some genera (e.g., *Poecilipta*), narrow intercoxal sclerites abut but do not fuse to the sternum and carapace.

Pedicel. In all of the Australian material examined here, the pedicel is separate and not fused to either the carapace or abdomen (Fig. 3d, f); however, in *Corinnomma*, the pedicel and the dorsal and epigastric scute are fused (Fig. 13c, e).

Pedicel collar (Figs 12d, 40a, c, d). The anterior edge of the genital scute in males (and to a lesser extent in females) is produced forward over the pedicel. When the dorsal surface is effectively parallel to the ventral surface, that portion is here referred to as the pedicel collar.

Legs. RCH (retrocoxal hymen) (Figs 9d, 48e) on retrolateral coxa I in present in all genera except *Ticopa* gen. nov., some *Battalus, Copa kabana* sp. nov., *Leptopicia* gen. nov. and some *Nyssus*, but is often difficult to discern in spiders with pallid coxae. The junction of the coxae lack strong basal extensions; the coxae are not strongly modified and all leg coxae are similar.

Relative leg lengths. 4123 or 1423 (*Kolora* gen. nov., Fig. 48a). Legs short to long, slender. From above, tarsi widen distally. In *Poecilipta*, legs I and II are noticeably weaker than III and IV (Figs 3a, 99a–c). A very long erect dorsal bristle is present basally and distally on patellae, and distally on tibiae (Fig. 6d).

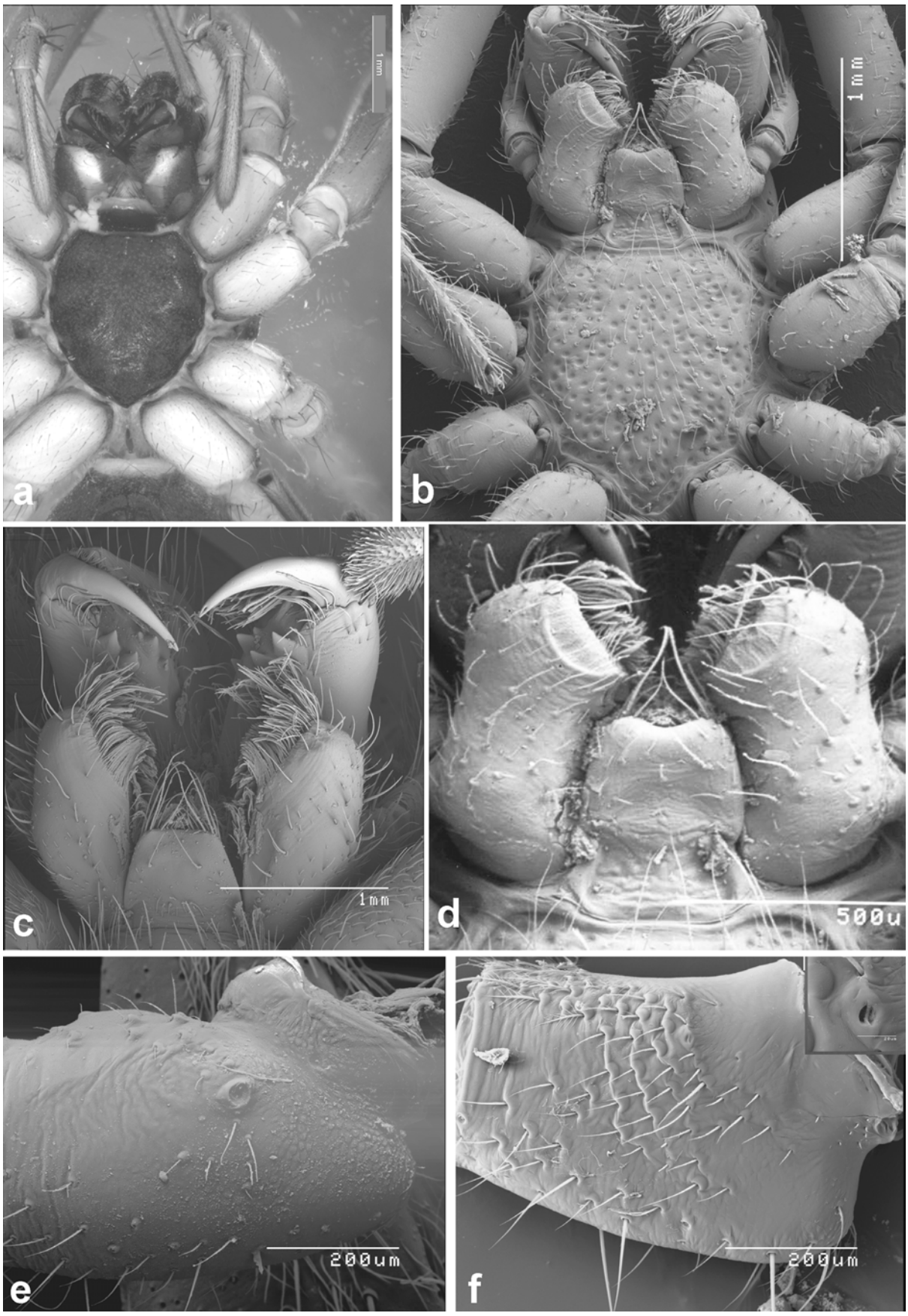


FIGURE 5. Corinnidae, female, sternum, labium, maxillae and chelicerae, ventral view, a–d: a, *Battalus byrneae* sp. nov.; b, d, e, *Koppe* sp., female (Liocranidae); c, *Nyssus coloripes* Walckenaer, 1805; e, f, retrolateral coxa I, showing retrocoxal hymen, f, *Nyssus yuggera* sp. nov.

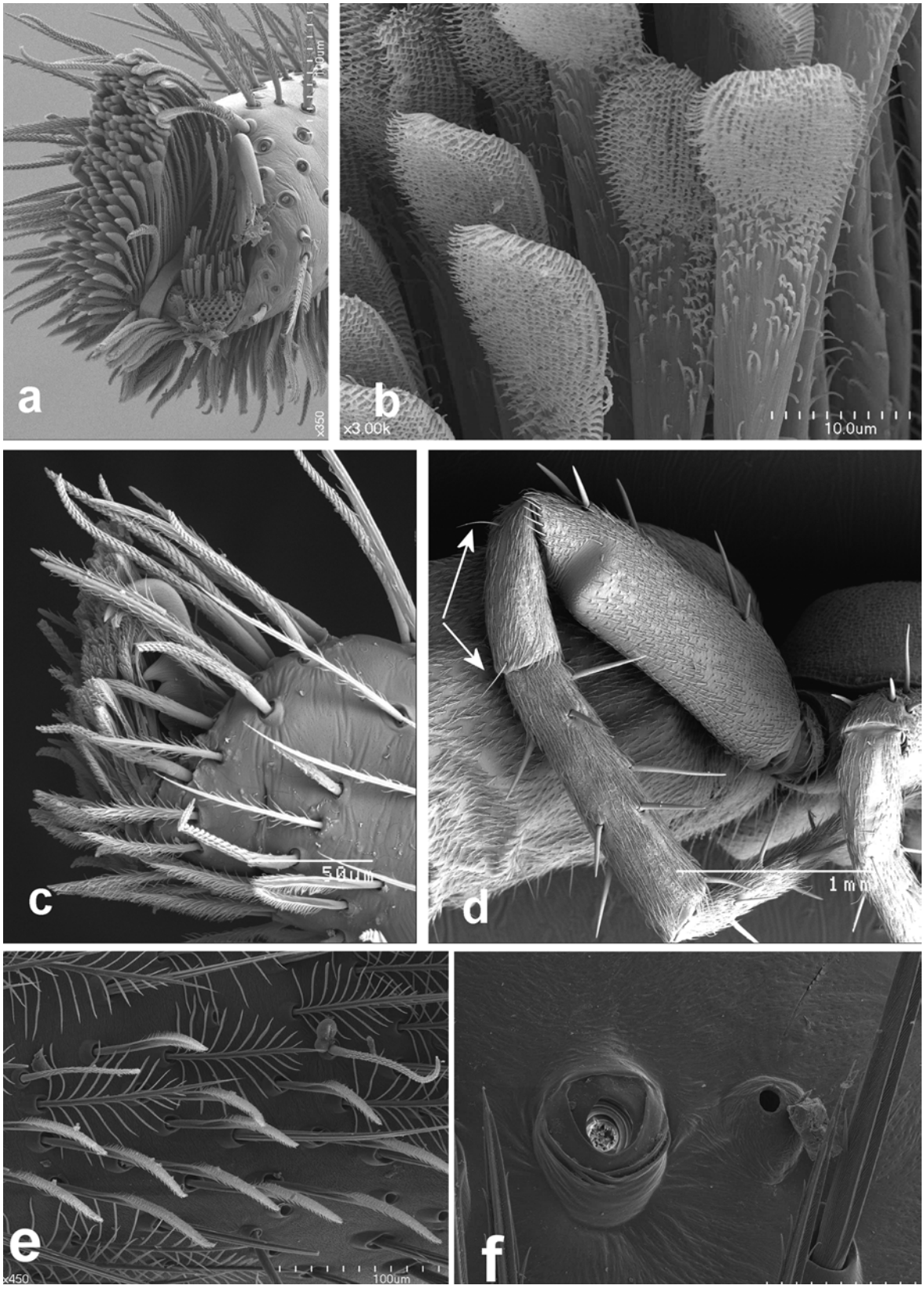


FIGURE 6. Castianeirinae, claw tufts and femur IV, a–d: a, b, e, f, *Copa flavoplumosa* Simon, 1886 (identified from SEM images by Charles Haddad, 2005 (Zimbabwe: Batoca Gorge & Dibu Dibu River, 17°58'S, 25°57'E, 27–28.X.1990, V. D. & B. Roth, 14 ♂ 5♀, CAS, images by M. Ramírez), axial view (a), and close-up of tuft hairs (b); c, *Nyssus coloripes* Walckenaer, 1805, retrolateral tarsus IV; d, *Iridonyssus kohouti* sp. nov., leg IV showing distal femoral constriction and distodorsal setae (arrows), prolateral view. e, f, scanning electron micrographs: e, feathery hairs; f, trichobothrial base and tarsal organ, images by M. Ramírez, see above.

Femoral constriction (Figs 6d, 42d). On the distal eighth of femur IV, and to a lesser extent of III of both males and females of some ant-mimicking species of *Nyssus*, *Poecilipta*, most *Iridonyssus*, and *Disnyssus*, the gradual curve of the ventral femur is interrupted by a sudden constriction, making the distal ventral 1/8 almost straight and steep (Fig. 6d). The character has not been reported for Castianeirinae in North America (Reiskind 1969), South Africa (Haddad 2012) or Southeast Asia (Deeleman-Reinhold 2001). It is present in *Nyssus albopunctatus* but absent, or so weak as to appear so, in *Nyssus coloripes*. Its absence in the wasp-mimicking *Nyssus coloripes*, but presence in *Nyssus albopunctatus*, which is not strongly ant-mimicking, leaves no room for speculation.

Female palpal tarsus. In most genera, the tarsus enlarges distally (Fig. 5a, 27i) with a curving dorsal profile and straight to slightly concave ventral edge, with almost blunt apex. In some taxa, the distodorsal mound has denser clustering of hairs and setae, but that is never referable to as a scopula.

Spines. These occur on all legs and palps of all genera; they are reduced and weak or absent on legs I and II of *Nucastia* (e.g., Fig. 69b) and *Disnyssus*. On tibiae and metatarsi I and II, except in *Medmassa*, they are never so strong as in *Koppe* and *Oedignatha* (Liocranidae), ctenids or zorids. Basic spine pattern: I, II: fe pv1p1–2d1–4r1–2; ti v2.2–2.2.2.2; me v2.2. III, IV: fe p0–3d3–4r0–3; pa d0–1; ti p2d0–1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2v0–4; pa p1d0–2; ti p2; ta p2d1 (males).

Proventral spine (Fig. 11d). A spine clearly set well below the line of the distal prolateral spines on femora and often directed downward.

Leg scopula. Absent in most genera; when present (e.g., *Ticopa* gen. nov.), weakly only on metatarsi and tarsi I and II.

Claws (Fig. 6a). All small, with few small teeth, set just above tufts; gently and uniformly curved; no change in size evident between claws of legs I and IV. Female palpal claw short, distinct, very reduced in some *Kolora* (Fig. 50c).

Claw tufts (Fig. 6a–c). True tufts of hair-clusters arising from sclerotised discs ectally of each paired claw (see Raven 1994, Ramírez, 2014) occur in all corinnids here examined. However, the tufts are quite short and often hardly or do not obscure claws. The tufts are short but dense, not distally separable (*cf*. *Clubiona* Latreille, 1804, see Raven & Stumkat 2002) and similar on all legs; absent on male palp. Tufts observed here were not as mobile under hydrostatic pressure in alcohol as in *Clubiona*. Following Raven (1986), these are all "true claw tufts" set on a separated plate outside the base of each claw (but see also Ramírez, 2014: 293 and characters 163, 173). Three hair types are evident in corinnid claw tufts: symmetrically fimbriate hairs, ventrally fimbriate paddle hairs and distolaminate hairs (Fig. 6b). The latter are least numerous and have a fluted base, with distal two-fifths with broad diagonal scallop-like lamellae; ventrally fimbriate paddle hairs are the most common on the tuft and the filaments are longest in basal 3/4; distally, the filaments may be broken but only a uniform field of low lobes are evident.

Trichobothria. Two rows each of *ca*. 6 for *ca*. 0.6 of tibia length; one row of 6–8 on metatarsi, most distal longest and most mobile; two rows on tarsi, all filiform, clearly separated by medial band of setae. The tarsal trichobothria, especially, are not mobile in alcohol, as in miturgids and other groups. Less hirsute, litter-dwelling spiders (e.g., *Disnyssus*) tend to have fewer trichobothria, with the most distal being longer and more mobile in ethanol.

Lehtinen (1967: 292) considered the corinnids to be characterised in part by the “lack of distinct tarsal trichobothria”. Tarsal trichobothria are quite distinct in corinnids; however, they are much shorter than in, for example, miturgids. They are also far less mobile in 70% ethanol than those of many other families.

Recognition of trichobothria may be facilitated by minor vibrations to the alcohol in which the spider is being examined. The effect is most dramatic in dry moults in which minor convection currents cause sparassid trichobothria to oscillate rapidly; that is not the case in corinnids. The oscillation of corinnid trichobothria appears to be a dampened action.

The subsurface shaft of the trichae of *Nyssus coloripes* and *Poecilipta janthina* Simon, 1896 has been examined by scanning electron microscopy. In both species, at the bothrial collar, the shaft is smooth. However, below that, the shaft has uniform rows of closely packed lobes about twice as long as high. The lobular subsurface shafts or at least subsurface sculpturing was reported by Ramírez (2014, character 184, RI=0.90) which proposed that it is a further synapomorphy for the Oval Calamistrum clade. In any case, the reduced space around them is likely to dampen the amplitude of the response of the trichobothria.

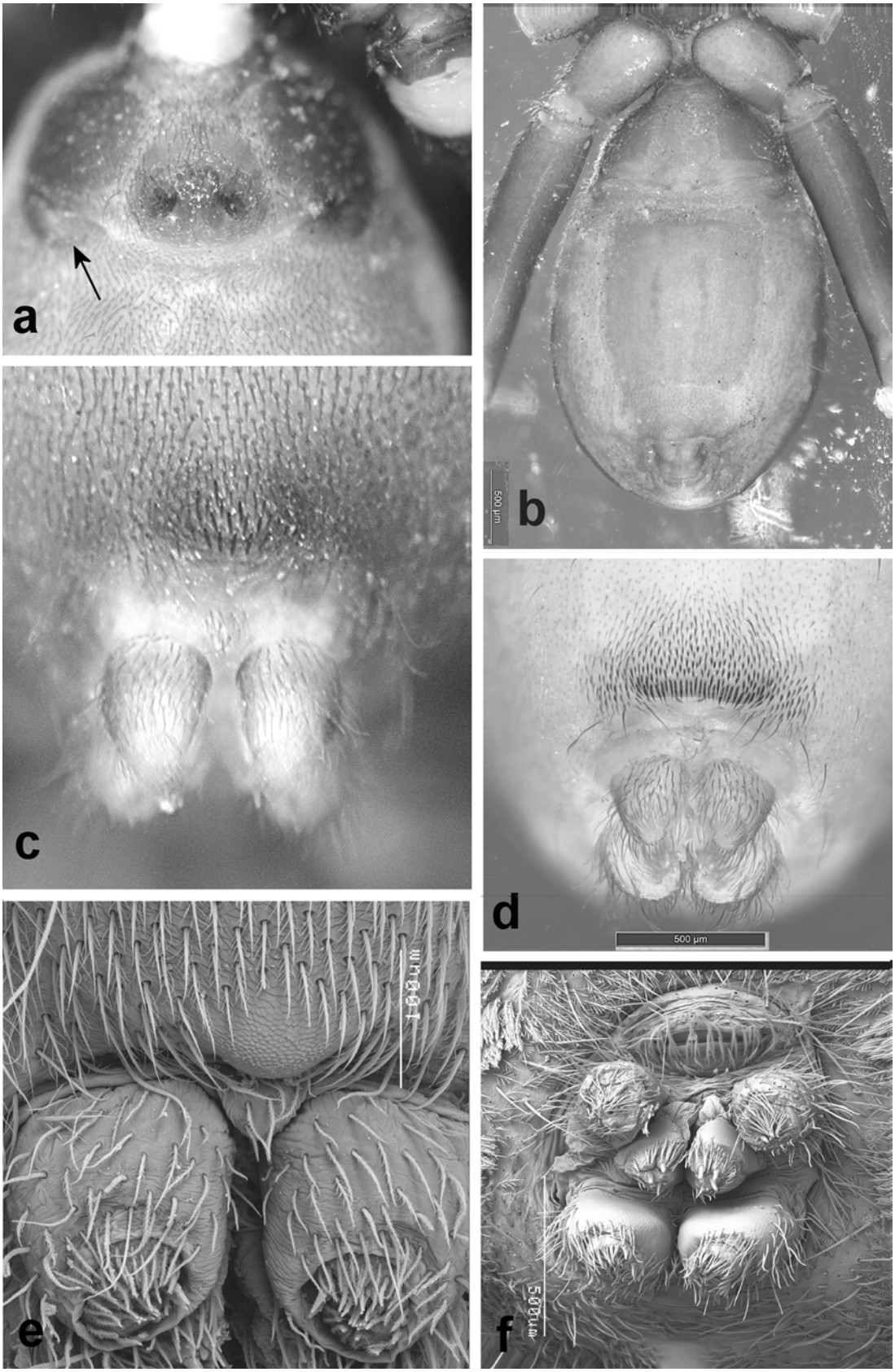


FIGURE 7. Castianeirinae, ventral abdomen, epigyne and spinnerets. a–c, *Nyssus yuggera* sp. nov., epigyne showing paragenital unsclerotised zones (a) and post-epigastric sclerites (arrow); male ventral abdomen showing ventral scute (b). c, d, e, tracheal spiracle: *Nyssus yuggera* sp. nov. (c), *Battalus helenstarkae* sp. nov. (d); *Iridonyssus kohouti* sp. nov. (e); *Nyssus coloripes* Walckenaer, 1805, female (f).

The bothrial collar or hood in corinnids is of two forms: in Castianeirinae, the proximad portion has several incomplete, irregularly curving, transverse striations, which join or divide (Fig. 6f). Griswold (1993) found the former in *Zoropsis* Simon, 1878 and *Takeoa* Lehtinen, 1967, and the latter in *Zorodictyna* Strand, 1907, *Acanthoctenus* Keyserling, 1877 and *Devendra* Lehtinen, 1967 but treated them as one plesiomorphic state. In *Melanesotypus*, *Creugas* Thorell, 1878 and *Leichhardteus*, the distal edge of the hood has a second striation but is otherwise as for the Castianeirinae.

Tarsal organ (Fig. 6f). In the corinnids examined here, save for *Melanesotypus*, the tarsal organ has an acentric ovoid aperture on a low dome and a distinct margin. It is either clearly a low dome with a smooth transition across its base (e.g., *Nucastia* gen. nov.) or set off by a distinct groove almost encircling the dome (e.g., *Battalus diadens* sp. nov.). In *Melanesotypus*, the tarsal organ has a relatively large ovoid aperture on an indistinct mound.

Trochanters. At most, notched only on leg IV and shallow; unnotched in most genera (Fig. 9b).

Epigyne (Fig. 135). External. Within most Australian castianeirine genera, the external epigyne is quite conservative. It typically consists of a pair of copulatory fossae of various sizes set on a low, almost flat plate (Fig. 21a). The fossae may be offset anteriorly and laterally by a crescentic ridge but often the posterior edge is a gradual funnel. In *Nyssus coloripes*, the fossae are so large as to form a narrow median septum (Fig. 74c), which is wider in *N. albopunctatus* (Fig. 80d). In *Nyssus paradoxus* sp. nov., the fossae are overlaid on each side by a diagonal broadly n-shaped bar (Fig. 89a), which presumably allows the tibial apophysis of the male to lock. In some cases, a small translucent genitalic plug is present (e.g., *Nyssus semifuscus* sp. nov.). In *Medmasssa* (Fig. 11b), only one central fossa is present.

Internal genitalia (Fig. 135). Basically, these are quite simple with short curved duct leading from the copulatory fossae to main spermathecae (all with thin walls). Short blind pockets arise or the main duct folds back on itself tightly. In *Nyssus paradoxus* sp. nov. and *N. robertsi* sp. nov., on each side is a pair of equally long ducts joining anteriorly (Fig. 89c, e). The fertilisation ducts are always posterior.

Paragenital brackets (Figs 7a, 22c, 40c, 71d, 86b, 131g). As Deeleman-Reinhold (2001) noted for southeast Asian genera, most castianeirines have a scute over the entire genital area of females. In adult females of most genera, this scute is interrupted on the lateral edges of the epigyne by a narrow but distinct weakness in the sclerotisation. That weakness is indicated by a pallid line from the posterior edge of the epigynal plate anteriorly to a line across the anterior limit of the epigyne. Platnick (2000) reported a similar condition in the Lamponidae.

Post-epigastric sclerites (Figs 7a, 37d, 40c, d, 42b, 44c). In some genera, the genital scute extends laterally around the outer edge of the booklung aperture and forms a wedge of sclerotised cuticle behind the booklung aperture. The shape of the wedge, if present, varies from a narrow sliver to a planoconvex plate, sometimes recurving anteriorly at the tip and closing back on itself (closed). This is character 212 of Ramírez (2014). In *Corinnomma severum* (Thorell, 1881) and *C. javanum* Simon, 1905, the post-epigastric sclerites are fused to the genital plate and to the dorsal scute (Fig. 13e).

Suprapulmonary sigilla (Fig. 27a). An ovoid to rectanguloid sclerotised sigilla on the lower lateral abdomen, lateral of booklung and above it.

Intercoxal triangles. Triangular sternal extensions between coxae (Fig. 25d).

Precoxal triangles. Triangular sternal extensions directed at the midpoint of coxae (Fig. 14d).

Abdominal scutes (Figs 7a–e, 8b, 12a, d, 13a, c, e, 14a, d–f, 17a, b, 20a, 20 a, d, f). In the Castianeirinae, as well as in the liocranids *Koppe* and *Oedignatha*, these are not separate or additional sclerotised plates but simply thickenings of the cuticle. Four scutes are found in Australian corinnids: dorsal abdominal, genital, ventral, and tracheal (inframamillary). The dorsal abdominal scute extends from the anterior face of the abdomen to between 1/6 and the full length of the dorsal surface and extends just onto the lateral faces. It is present in males of most genera but reduced or absent in conspecific females. The genital scute (Fig. 14d) is always present to a greater or lesser extent, depending on the degree of sclerotisation in both males and females. It may extend forward onto the pedicel and form the pedicel collar, and may extend upward, but no Australian castianeirines are known to have the dorsal and genital scutes fused, as in *Corinnomma* (Fig. 13e) in which the dorsal scute extends around to the ventral edge of the abdomen. The ventral scute (e.g., Fig. 7b) is a rectangular or at least rhomboidal area between the genital fold and the tracheal spiracle. In some species (*Iridonyssus formincans* sp. nov, Fig. 44c), it appears fused to the tracheal scute whereas, in *Iridonyssus kohouti* sp. nov, (Fig. 40c), it is clearly separate; it is usually present only in males. Anomalously, in males of *Nyssus albopunctatus*, the ventral scute may be present or absent in spiders from one locality; presence is by far the rarer state. The tracheal scute (Figs 7b–d, 8a, b, 13e, 14d, 29f, 37d, 40d,

42b, 44c) is a broad or hemispherical to pap-like hirsute sclerotised zone around the tracheal spiracle. It is present in most Australian Castianeirines and occurs also in ant-mimicking Zodariidae (e.g., *Habronestes* L. Koch, 1872; Baehr 2003), suggesting it plays a role in supporting the mimicry. Bosselaers & Jocqué (2002) and Ramírez (2014) term this as an inframamillary sclerite; however, it is not below or associated with the spinnerets (where it could be confused with a sclerotised colulus) and more correctly refers to the tracheal spiracle, following Chickering (1937) and Bonaldo (2000). In most species, it is a separate scute but in some species (e.g., *Disnyssus helenmirrenae* sp. nov., Fig. 37d), the ectal edge is fused to the epigastric scute.

Hairs, scopula and bristles. Feathery hairs (Figs 6e, 7e, 65b) (*sensu* Lehtinen, 1967). These are large flattened hairs with single wide isolated opposed lateral. They are found commonly on the legs (femora–metatarsi) of males and females and also on the carapace and abdomen. Pattern is generated by white, black or yellowish feathery hairs. The hairs are adpressed to the surface and the base is a simple narrow shield that is little wider than the hair shaft. Short, scale-like hairs may be present on the carapace but usually not with feathery hairs.

Scopula hairs. The scopula, when present, includes two hair types. Ventrally on tarsi, hairs are fimbriate and cylindrical, with filaments arising in closely set rows around the entire shaft; these are symmetrically fimbriate hairs. On the upper margin or scopula boundary, the hairs are flattened and shorter with enlarged distal 3/4, and finely fimbriate only on the lower surface, with wide shallow groove for the length; the opposed base has 4–5 large thicker filaments; these are termed asymmetrical paddle hairs. This is similar to one of the hair types in claw tufts.

Distodorsal setae (Fig. 6d). These are elongate erect setae found dorsally on the distal patellae and tibiae and sometimes also on the basal tibiae. They are about as long as the tibia, and erect, with little sculpturing or ornamentation on the shaft.

Male palp. Retrolateral tibial apophysis (Figs 10c, d; 88a–c): in all Australian castianeirines save for *Nyssus paradoxus,* the RTA is absent. In most genera, the tibia is ventrally concave forming a ridge distally (e.g., Figs 77b, 81b). However, in *N. paradoxus*, a distinct spinose lobe is present (Fig. 83a–c). Presumptive precursors of the line of spine-like bristles in *N. paradoxus* are evident in *N. pseudomaculatus* sp. nov. (Fig. 12b), less evident in *N. albopunctatus*, and strongest in *N. wendyae* sp. nov. (Fig. 90 a, b). A true RTA (Fig. 10d) is present in the Corinninae (Bonaldo 2000), and hence its absence in most Castianeirinae is presumably apomorphic. Because *N. paradoxus* is unequivocally closely related to *N. wendyae*, it is suggested that the presence is secondarily apomorphic. The tibial apophysis reported by Reiskind (1969) is a fold arising out of the ventral tibia and is formed through a ventral concavity on the tibia and hence does not strictly qualify as a retrolateral tibial apophysis. This is similar to that reported in *Corinnomma* by Deeleman-Reinhold (2001) but not so evident in *Corinnomma javanum* (Fig. 13b) and in *Graptartia granulosa* Simon, 1896 by Haddad (2004). There is no indication that the tibial apophysis in *Nyssus paradoxus* is stridulatory; the opposed surface lacks ridges or grooves.

Bulb. In all Castianeirine genera, save for some species of *Ozcopa*, the bulb is very simple and the pyriform tegulum lacks a median apophysis and conductor, with a subtegular lobe retrolaterally. The doubly looped spermatic duct can be seen through the tegulum. Haddad & Bosselaers (2010) noted that the single loop in *Medmassa* is not found in the Castianeirinae and hence *Medmassa* is here placed in the Corinninae following Haddad (2013b). The embolus is fused to the tegulum and often spiralled or twisted apically. In *Ozcopa* gen. nov. (Figs 93a–f, 94a–e, 95a, b), a paraembolic process may serve as a conductor but is clearly only a secondary lobe off the embolic portion. In many males, the basal haematodocha of one or both palps has expanded.

Cymbium. Most species treated here have a simple canoe-shape, gradually tapering apically to the tip. In *Poecilipta*, some species have the apex (apical cone) twisted, forming a short ventral groove in which the embolus rests and presumably functions as its guide (Figs 106a–d, 116a, c–e, 117d–f, 121a–c, 122a, c). In *Kolora* (Figs 48e, 49c), the cymbium is very long and the cymbial apex has 2–3 enlarged claw-like setae; in *Disnyssus*, the dorsal apex is also weakly scopulate. The portion of the cymbium distal of the bulb may be simple, conical or with a deep straight or sinuous furrow. In some species, small spines occur on the ventral face (e.g., Figs 28a, 30a, 32b, 43a, b). In male *Kolora*, the cymbial tip has long hooked claw-like spines terminally (Fig. 49c)

Paracymbial spine. Male *Corinnomma* differ from those of *Castianeira* Keyserling, 1879 principally in the presence of a paracymbial spine (e.g., Deeleman-Reinhold 2001, fig. 469), an ornate spine (Fig. 113c) often on a low process on the retrobasal upper face of the cymbium. Here it is seen that the process is, in fact, a separate spine showing differences in size, position, shape and microsculpturing (e.g., Figs 15b, d, 20e, 23e, 33a, 113c, 130a, c, f, 134c, d), both intra- and intergenerically. In the North American Castianeirinae, Reiskind (1969) found that a paracymbial spine is present in *Castianeira trilineata* Reiskind, 1969 and *Myrmecotypus olympus* Reiskind, 1969.

Deeleman-Reinhold (2001) reported it present in *Corinnomma* species but absent in all other southeast Asian genera; equally, the character has not been noted in continental Afrotropical castianeirines (Haddad 2004, 2006a, 2012a, b, 2013a, b, c), but does occur in many Madagascan Castianeirinae (Haddad, pers. comm.).

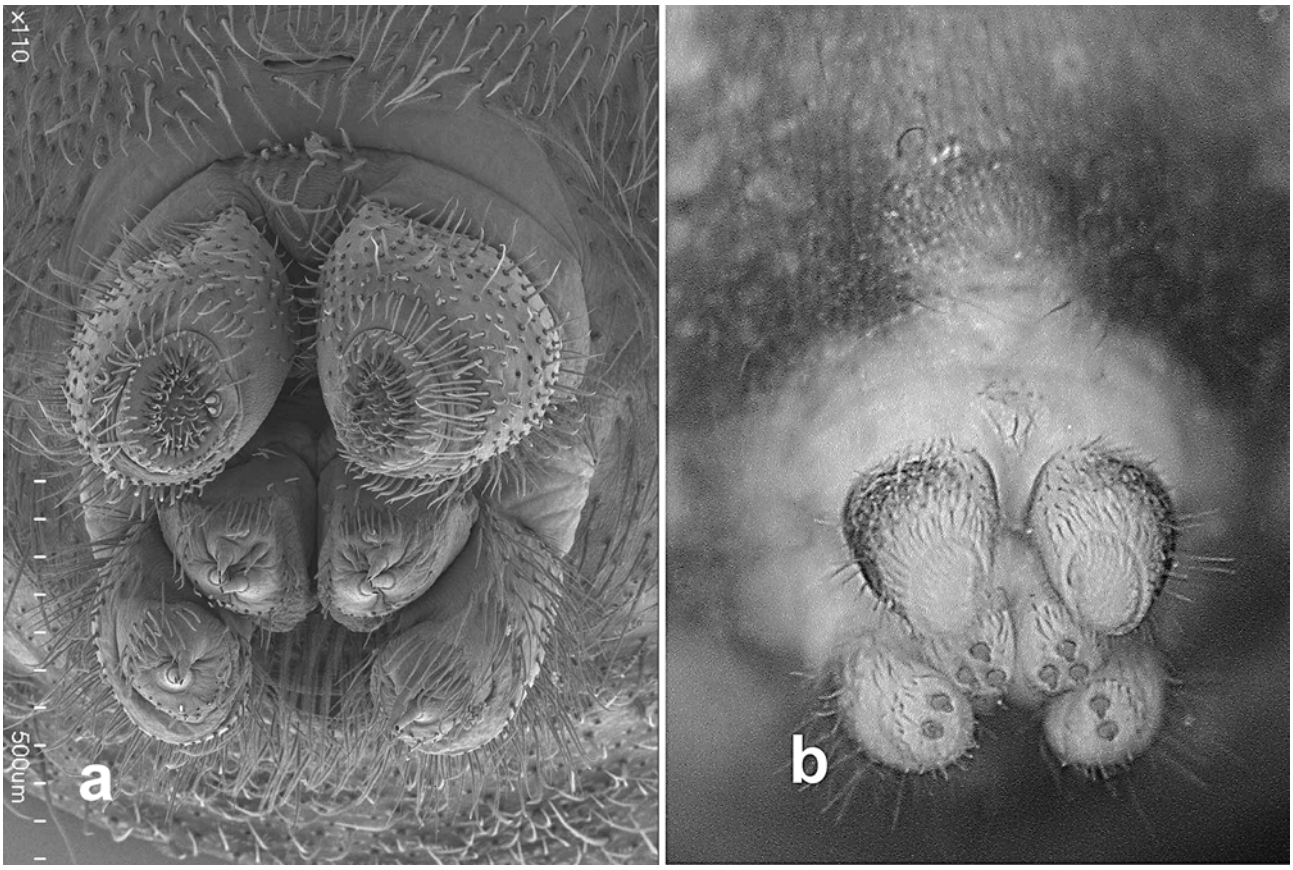


FIGURE 8. Spinnerets, female, ventral view. *Copa flavoplumosa* Simon, 1886, (identified from SEM images by Charles Haddad, 2005 (Zimbabwe: Batoca Gorge & Dibu Dibu River, 17°58'S, 25°57'E, 27–28.X.1990, V. D. & B. Roth, 14 ♂ 5♀, CAS, image by M. Ramírez), (a); *Leichhardteus kroombit* Baehr & Raven, 2013 (b).

A paracymbial spine is present in most Australian Castianeirinae, including *Leichhardteus* (part), *Ozcopa*, *Battalus*, *Ticopa*, *Nyssus*, *and Leptopicia*, but is absent in *Copa* Simon, 1886, *Nucastia*, *Kolora*, and *Iridonyssus*, and in some *Nyssus*, *Battalus* and *Leichhardteus*. In most genera, it is consistent in its occurrence, varying in size, position, and microsculpture. In *Leichhardteus*, a group well defined by the presence of a process on the ventral palpal femur of males (unique in corinnids), the paracymbial spine varies from a large flattened lobe through a small thumb-like process (Fig. 56b) to a spine (Figs 57b, 58b) or complete absence (e.g., Fig. 61d). It may be simply a thicker short bristle or a significant spine on a raised process, as in *Nyssus*. Most parsimoniously, the polarity is from presence to absence. The character is absent in corinnid outgroups of the Castianeirinae, including *Corinna* C.L. Koch, 1841 (Bonaldo 1996, 2000), *Creugas*, the liocranids *Koppe* and *Oedignatha* (Deeleman-Reinhold 2001), and absent in putatively related (Lehtinen 1967) families, e.g., Zodariidae. The only other group in which a paracymbial process is reported are the miturgoid-zoroid complex and the Amaurobioidea (e.g., Lehtinen 1967; Forster & Wilton 1973; Davies 1986) and the Araneoidea (Griswold *et al*. 1998). However, in the first two groups, the process is simply an expanded area of cuticle, while in some Araneoidea it is a "separate" process. In none, outside the Castianeirinae, is the paracymbial process a separate spinose process that is socketed and has setal sculpturing (Fig. 113c), in contrast to the unsculptured adjacent cuticle. Hence, it is concluded that the character is plesiomorphically absent in Corinnidae and is considered an apomorphy in the Castianeirinae and is not a homologue of that in the araneoids or Cribellatae.

Palpal patella. In some families, the palpal patella is a complete unbroken cylinder. In *Amauropelma* Raven, Stumkat and Gray, 2001 (Ctenidae), it is distally invaginated and the two distal corners form apophyses or at least lobes. In *Asadipus* Simon, 1897 (Lamponidae), the patella is totally broken for its length. In *Knoelle clara* (L. Koch, 1877) and *Creugas gulosus,* it is distally invaginated.

Parategular indentation (e.g., Fig. 113a). The retrolateral edge of the bulb is often smoothly concave and the subtegulum is evident in the concavity and sometimes also on the opposed prolateral edge.

The pre-embolic ridge (e.g., Fig. 113a) is a transverse keel at the base of the embolus.

Sexual dimorphism. Males have neither ventral spines on palpal femora nor enlarged fang setae. They have more extensive dorsal abdominal scutes, and ventral scutes are known only in males. Leg lengths, spination, carapace shape and ornamentation, and femoral constrictions are similar in both sexes. In some genera (e.g. *Poecilipta*, *Disnyssus* gen. nov. and *Kolora* gen. nov.), males have more conspicuous abdominal patterns but leg patterns remain similar.

Spinnerets (Figs 7c–f, 8a, b). The apices of ALS and PLS are short, and domed. Females all show the putative corinnid formula (Fig. 8a, b) (Bonaldo 2000) of three cylindrical gland spigots on the PMS and two on the PLS. The PMS of females are digitiform with spigots distally. The PLS are slightly shorter than the ALS but both pairs are squat truncate cones.

Colulus (Fig. 8a, b). Present in most genera as a distinct hirsute triangle.

Nomenclatural Issues

Genus *Supunna* Simon, 1897

The resurrection of *Nyssus* over *Supunna* was not taken lightly but in consultation with a commissioner of the International Commission for Zoological Nomenclature. The key issue discussed below is that the validity of the genus name *Supunna* is undermined by an unresolved lapsus concerning its type species.

Walckenaer (1805: 52) described a new genus and species, *Nyssus coloripes* Walckenaer, 1805 for a spider from an unspecified Australian location, given simply as 'Nouvelle-Hollande'. He placed *Nyssus* in his grouping 'Linteolariae', a taxon that is no longer used. The short description was accompanied by good illustrations of the eyes, maxillae, labium and palps (Walckenaer 1805: plate 6, figs 57, 58). The number of type specimens was not mentioned in the description, although the material was reported to have been collected by 'M. Péron'. François Péron became the zoologist on Nicolas Baudin's exploratory expedition to Australia in 1801–1803, and made numerous, significant faunal collections. Although the material of *N. coloripes* was reported by Walckenaer (1805) to be in the collections of the 'Muséum' (i.e. Museum National d'Histoire Naturelle, Paris), this material has not been located and is presumed to be either lost or unrecognisable amongst the collection. Walckenaer (1841: 25) later transferred *Nyssus coloripes* Walckenaer, 1805 to the genus *Agelena* Walckenaer, 1805, and the species was subsequently listed in the Agelenidae, where it remained ignored (save for cataloguers) until now. This was hardly surprising as the Australian Corinnidae have not been taxonomically treated since 1904. Simon (1864) changed the species epithet 'coloripes' to Latin and listed *Nyssus coloripes* as *Nyssus pedicolor*, an improper emendation that has not since been followed.

Thorell (1881) described a new genus and species, *Anchognatha avida* Thorell, 1881, for a spider from northern Australia. Originally included in the subfamily Sparassinae of the family Clubionidae, *Anchognatha* was included in the elevated family Sparassidae or its synonym Eusparassidae by subsequent cataloguers (Bonnet 1955: 315; Roewer 1955: 729). The genus has remained monotypic and unstudied ever since. The type material of *Anchognatha avida* is lodged in Museo Civico di Storia Naturale, Giacomo Doria, Genoa, Italy and has been examined.

Hogg (1896) described *Liocranum albopunctatum*; here considered the senior synonym of *Supunna funerea* Simon, 1896, predating it by 8 months.

Simon (1896) described two new species, *Supunna funerea* Simon, 1896 from 'Tasmania: Lauceston[sic.]' and *Supunna versicolor* Simon, 1896 from 'Victoria int.'. However, the genus *Supunna* was only validly described with a type species in Simon (1897a). Nevertheless the date of the species remains 1896 (ICZN: Article 11.9.3.1 species group names [to be available] and "the generic name need not be valid or even available;").

Although Simon (1897a: 168) noted that *Nyssus* may be the senior name of *Supunna* (p. 168, '=*Supunna*'), he described *Supunna* as a new genus in the second edition of his epic 'Histoire Naturelle des Araignées'. However, presumably through a timing miscalculation, as noted, he had already used the genus name (Simon, 1896; but the genus name was not validly published until 1897) and originally included only two species in the genus, *S. funerea*

Simon, 1896 and *S. versicolor* Simon, 1896, neither of which was the type species mentioned in Simon (1897a). Simon (1897a: 173) listed the type species of his newly erected genus *Supunna* by original designation, as "*S. spinipes* L. Koch". This was another double lapsus, as no such species was ever named by L. Koch nor was it named in Simon's genus diagnosis or the preceding general discussion (p. 168):

"En Australie, les genres précédent sont remplacé par les *Supunna* et les *Poecilipta*; les premiers sont de formes courtes et trapué, et très noir, avec l'abdomen orné de taches blanches seriés, quelques-uns on les pattes antérieur en partie jaune; on en connait un des îles Viti, *S. (Agroeca) insularis* (L. Koch), un de Tasmanie (*S. funerea* E. Sim.) et les autres de la Nouvelle-Hollande orientale et centrale (1); c'est peut-être à ce genre qu'il faudra rapporter l'*Agelena coloripes* Walck; on serait aussi tanté de lui assimiler le genre *Battalus* Karsch, très brièvement décrit par le Dr Karsch (*in* Zeitchr. f. d. Ges. Naturwiss., LI, 1878, p. 817), si l'auteur ne citait dans le même mémoire (p. 796) l'*Agroeca insularis* L.Koch, qui est un vrai *Supunna*."

Simon (1897a) may, however, have conflated the type species of *Battalus* Karsch, 1878 (*Battalus spinipes* Karsch, 1878), which he also considered was synonymous with *Supunna* but is in fact a very distinct Australian corinnid genus.

Simon (1897a) mentioned the species *Agroeca insularis* L. Koch, 1873 in the discussion prior to the type species designation. The specimen described by L. Koch (1873) was an immature female, one of the taxonomically least informative life stages in spiders, but the species can be recognised as there is only one similar corinnid genus known from the islands. L. Koch (1873: 437) referred to his description of *Agroeca insularis* to L. Koch (1867) on page 382. However, the last page of L. Koch (1867) was page 352. Bonnet (1958: 4196) considered that L. Koch (1867) was never finished and, contrary to L. Koch (1873), considered that the original species description was in L. Koch (1873).

Since their descriptions, apart from Simon (1897a), both *Nyssus* and *Anchognatha* have been mentioned only in catalogues and bibliographies in various families (e.g. Rainbow 1911; Petrunkevitch 1928; Bonnet 1958; Roewer 1955; Platnick 2013). Although other species were briefly included in *Nyssus*, they were soon transferred and the genus presently includes only the type species (Platnick 2013).

The date of publication of the genus-group name *Supunna* and its type species have been unclear. Simon's unintentional publication of *S. funerea* and *S. versicolor* (Simon 1896 prior to the generic description in Simon 1897) has led different cataloguers to adopt different type species: *Agroeca insularis* L. Koch, 1873 by Rainbow (1911: 253); "*Supunna spinipes* (L. Koch)" by Petrunkevitch (1928: 180), erroneously following Simon (1897a: 173); *Agroeca insularis* L. Koch, 1873 by Roewer (1955: 636, which was erroneously listed in the synonymy as L. Koch, 1875) and Bonnet (1958: 4916). Bonnet (1958) explicitly stated that Simon (1897a) meant to designate *Agroeca insularis* L. Koch, 1873 as the type species of *Supunna*.

The uncertainty regarding the type species of *Supunna* has taxonomic ramifications. If we assume that Simon (1897a) intended the type species to be *Supunna insularis*, then the genus *Supunna* could be restricted to several species in north Queensland and the western Pacific (the *Nyssus avidus* group). If *Battalus spinipes* is accepted as type species, then *Supunna* would become a junior objective synonym of *Battalus*, as both would share the same type species. If either of the species referred to *Supunna* by Simon (1896), *S. funerea* or *S. versicolor*, is treated as type species, the genus would retain its current meaning. All subsequent references to the type species designations for *Supunna* have used the taxon listed by Simon (1897a) as type species.

In Roewer (1955: 635, 636), *Supunna* was listed in the Clubionidae. He erroneously included the combination *Agelena coloripes* (Walckenaer, 1841) as a separate species and a synonym in *Supunna*, and assigned that combination to Simon (1897a: 168).

Here, *Nyssus, Anchognatha* and *Supunna* are considered synonymous. The type species of *Nyssus*, *Nyssus coloripes*, is a senior synonym of *Supunna picta* (L. Koch, 1873).

The genus name *Supunna* is widely used in both popular and scientific literature. Neither *Nyssus* nor *Anchognatha* have been used in the primary literature since Roewer (1955). At the outset of the work, *Supunna* included nine species (Platnick 2013).

The only acceptable conclusion is that the genus *Supunna* was validly formed by Simon (1897a) and thus *S. insularis* is available as the type species in 1897.

Miturga australiensis (L. Koch, 1873), new combination

Liocranum australiensis L. Koch, 1873: 429.
Medmassa australiensis: Simon, 1898: 195.

Remarks. Although L. Koch (1873: 429) refers to the description in L. Koch (1867: "366"), Bonnet (1957: 2747) and others found that the last page in present copies of L. Koch (1867) is 352. Hence, the valid date should be that of L. Koch (1873) who however states that he no longer has the specimen and merely repeats the description from L. Koch (1867).

Simon (1898) suggested ("peut-être") that the species should be included in *Medmassa*. No type specimen is known, but the description refers to a spider with a carapace length of 4.75 mm (large for a corinnid), with leg IV only slightly longer than I (12 vs 10.5 mm). Also considering the eyes (similar sizes and spaced with wider back row), spination (no strong pairs), colour (black spots on dorsal abdomen) and presumed claw tufts; it is most likely a species of *Miturga* to which the species is here transferred, if in fact it is not a nomen nudum.

TAXONOMY

Key to corinnid subfamilies (and similar genera) in the Pacific

1. Posterior eye row clearly recurved; carapace long with median transverse saddle, resembling model ant thorax (Fig. 14f) . . . . . Castianeirinae (part) *Melanesotypus*
   Posterior eye row strongly procurved to slightly recurved 2
2(1). Posterior eye row clearly procurved (e.g., Fig. 16b–f) 3
   Posterior eye row recurved or almost straight (Fig. 16a) . . . . . Castianeirinae, part (*Disnyssus*)
3(2). Abdomen strongly sclerotised in both sexes and strong paired spines on tibiae and metatarsi I, II (Deeleman-Reinhold, 2001, fig. 8 as in *Medmassa christae*, Fig. 11d); maxillae with distinct transverse groove (Fig. 5b, d) 7
   Not as above 4
4(3). Sternum with anterior ledge forming depressions at each anterior "shoulder" (Fig. 9b); male palpal bulb oval, with tegular apophyses (Fig. 10a) . . . . . Corinninae, *Creugas*
   Sternum without anterior depressions (Fig. 5a); male palpal bulb pyriform/pear-shaped, without tegular apophyses but may have complex embolus tip (e.g., Fig. 95a) 5
5(4). Very strong paired spines on tibiae and metatarsi I, II (Fig. 11d) . . . . . *Medmassa*
   Spines not strong on tibiae and metatarsi I, II . . . . . Castianeirinae, part
6(3). Posterior median eyes round, domed; females with triad of spigots on PMS (as in *Leichhardteus kroombit*, Fig. 8b) . . . . . Liocranidae 7
   Posterior median eyes oval, flat; females without triad of spigots on PMS . . . . . Phrurolithidae 8
7(6). Prolateral spine on femur I absent in males and females, and margins of the carapace smooth (see Deeleman-Reinhold, 2001, figs 348, 350) . . . . . *Oedignatha*
   Prolateral spine on femur I present in males and females, and margins of carapace undulating (see Deeleman-Reinhold, 2001, figs 375, 386) . . . . . *Koppe*
8(6). Strong paired spines ventrally on tibiae and metatarsi I, II . . . . . *Orthobula*
   No paired spines ventrally on tibiae and metatarsi I, II . . . . . *Sphingius*

Corinnidae Karsch, 1880

Corinneae Karsch, 1880: 374.
Myrmecides C.L. Koch, 1850: 41; Wunderlich, 1986: 28. Pre-occupied in the Insecta by Myrmeciidae Emery, 1877. Platnick (1989: 446) discussed the selection of Corinnidae.

Description. Two claws with distinct claw tufts; legs all prograde and spinose. Maxillae without strong lateral constriction or basal diagonal groove. Eyes in two slightly or strongly curved rows; PME circular. Lateral spinnerets all short truncate cones; three large cylindrical gland spigots on PMS of females; ALS with close bases; apical segment of PLS domed. Male palpal tibia with entirely sclerotised RTA or RTA absent. Tarsal trichobothria short.

Subfamily Corinninae Karsch, 1880

Diagnosis. Male palpal bulb with tegular apophyses. Sternum cordate, without extensive intercoxal extensions. Carapace without deep medial transverse saddle.

Genera found in Australia. *Creugas* Thorell, 1878, introduced; *Medmassa* Simon, 1887.

***Creugas* Thorell, 1878**

Creugas Thorell, 1878: 175; Bonaldo, 2000: 96. For complete synonymy, see Bonaldo (2000).

Diagnosis. Differs from *Corinna* in the presence of a hyaline, not sclerotised, conductor and from *Medmassa* in having spines on tibiae and metatarsi I, II only weak to normal, not strongly paired.

Type Species: C*reugas gulosus* Thorell, 1878. Holotype, juvenile in MCG, examined.

Description. See Bonaldo, 2000.

Species included from Australia: C*reugas gulosus* Thorell, 1878.

Remarks. Bonaldo (1996) gave a masterful redescription of the type species of *Corinna, C. rubripes* C.L. Koch, 1841 and considered that the genus should be limited to only those species with a sclerotised conductor.

***Creugas gulosus* Thorell, 1878**
(Figs. 9a–d; 10a–d. Map 1)

Creugas gulosus Thorell, 1878: 175. Holotype, juvenile, Amboina, coll. Beccari, 1874, in MCG, examined.
Corinna gulosa: Deeleman-Reinhold, 2001: 260, figs 337–347, map 19. For complete synonymy, see Bonaldo (2000).
Liocranum pallipes L. Koch, 1873: 430, pl. 34, fig. 1. **New Synonymy.**
Medmassa pallipes: Simon, 1898: 195.
Medmassa pusilla Simon, 1896: 415. **New Synonymy.**

Material. Australia: **Queensland:** 1♂, Auchenflower, Brisbane, 27°29'S, 153°00'E, in house, 23 Mar 1965, V.E. Davies, QM S28013; 1♂, Fortitude Valley, QM building, Gregory Tce, 27°28'S, 153°00'E, 12 Jan 1984, V.E. Davies, QM S28399; 1♀, same data but 17 Nov 1978, V.E. Davies, QM S44127; 1♀, Brisbane, 27°28'S, 153°00'E, 24 Dec 1972, R.J. Raven, QM S26460; 2♂, Heron Is., 23°27'S 151°55'E, 14–16 Jul 1978, V.E. Davies, QM S28396; 1♂, Raine Is., 11°37'S, 144°01'E, Jun 1980, B. King, QM S28421; 1♂, Hawthorne, Brisbane, 24°31'S, 147°32'E, in house, 11 Jan 1993, C. Goodwin, QM S20856. Bushy Island, Capricorn group, 20.953°S, 150.072°E, 0–5m, collected by QM/QPWS: 2♂ 3♀, site 3, pitfall, 0–5m, *Pisonia* forest, 18–20 Dec 2008, QM S87359; 1♀, same data, QM S87351; 5♂ 2♀, site 2, 20.953°S, 150.072°E, pitfall, 0–5m, beach among *Pandanus*, 18–20 Dec 2008, QM S87362; 1♂, 19–20 Dec 2008, QM/QPWS, QM S87364. 1♂, Tyron Is., site 4, 23.248°S 151.777° E, pitfall, 0–5m, young *Pisonia* reveg, 22 Aug–9 Oct 2008, A. McDougall, A. Nakamura, QM S87370; 1♂, North Reef Is., site 1, 23.185°S, 151.903°E, pitfall, 0–5m, *Pisonia* stand, 28–30 Apr 2008, A. McDougall, A. Nakamura, QM S87400; 1♀, Woody Is., Low Isles, 16°23'S, 145°30'E, 10 Jan 2009, R. Raven, QM S88426; 1♀, Northwest Island, 30 Oct 1936, C. White, QM W679. **New Caledonia:** syntypes (of *Medmassa pusilla*), 2 juveniles, Boc. 5.177.

Diagnosis. *Creugas* differs from other Australian corinnids by the presence of shallow crescentic depressions delimited by a ridge at the anterior lateral corners of the sternum (Fig. 9b).

Description Male QM S28399

Carapace 3.68 long, 3.03 wide. Abdomen 3.43 long, 2.16 wide. Total, 8.4.

Colour: carapace, sternum, maxillae, labium and chelicerae dark red brown, striae slightly darker, femora orange brown without bands, patellae to tarsi noticeably paler; abdomen dorsally light brown with small yellow brown scute, laterally mottled light brown, fading to pallid ventrally; genital area darker with light transverse bands on booklungs. Carapace (Fig. 9a): broad, widening strongly to coxae III, cuticle scale-like with fine pile of feathery hairs. Caput large, rounded; striae shallow, dark, distinct; fovea short, in posterior third. Eyes: PME much the smallest; back row clearly the wider; AME within 0.5 diameters; lateral eyes close; PME small, round, oval, two

diameters apart; clypeus *ca*. 1.5 diameters of AME. Cheliceral fang short, with 1 large and 2 smaller promarginal and 5 small retromarginal teeth. Sternum (Fig. 9b): cuticle pustulose with sparse bristle cover; intercoxal sclerites produced anteriorly and posteriorly; pedicel shield arrow-shaped ventrally. Legs: not strongly different; femoral constriction absent; leg I slightly larger, not longer than IV. Spines: tibiae I and II with 6 pairs (male) fine spines ventrally, most basal spine set basal of dorsal edge, metatarsi I and II with 2 basal pairs ventrally. I: fe pv1d2; pa 0; ti v2.2.2.2.2; me v2.2.0. II: fe pv1d2; pa 0; ti v2.2.2.2.2 proventral spines very long; me v2.2. III: fe p2d3r2; pa 0; ti p2d1r2v2.2.2; me p2r2v2.2.1. IV: fe p2d3r2; pa 0; ti p2d1r2v2.2.2; me p2r2v2.2.1. Palp: fe p1d2; pa p1; ti p1. Abdominal scutes: dorsal, small, ovoid in anterior third; genital scute (Fig. 9b) with undulations over booklung and slightly sclerotised post-epigastric sclerites. No ventral or tracheal scutes. Palp (Fig. 10a–d): large triangular RTA and deeply bifid ventrolateral process interlocking with large basal retrolateral cymbial extension (not a spine); cymbium asymmetrical, with bulb set retrolaterally in distal cymbium, large basal tegulum with large hooked prodistal embolus with pallid conductor-like process retrodistally; cymbium apically pallid with dense dorsal ovoid scopulate zone.

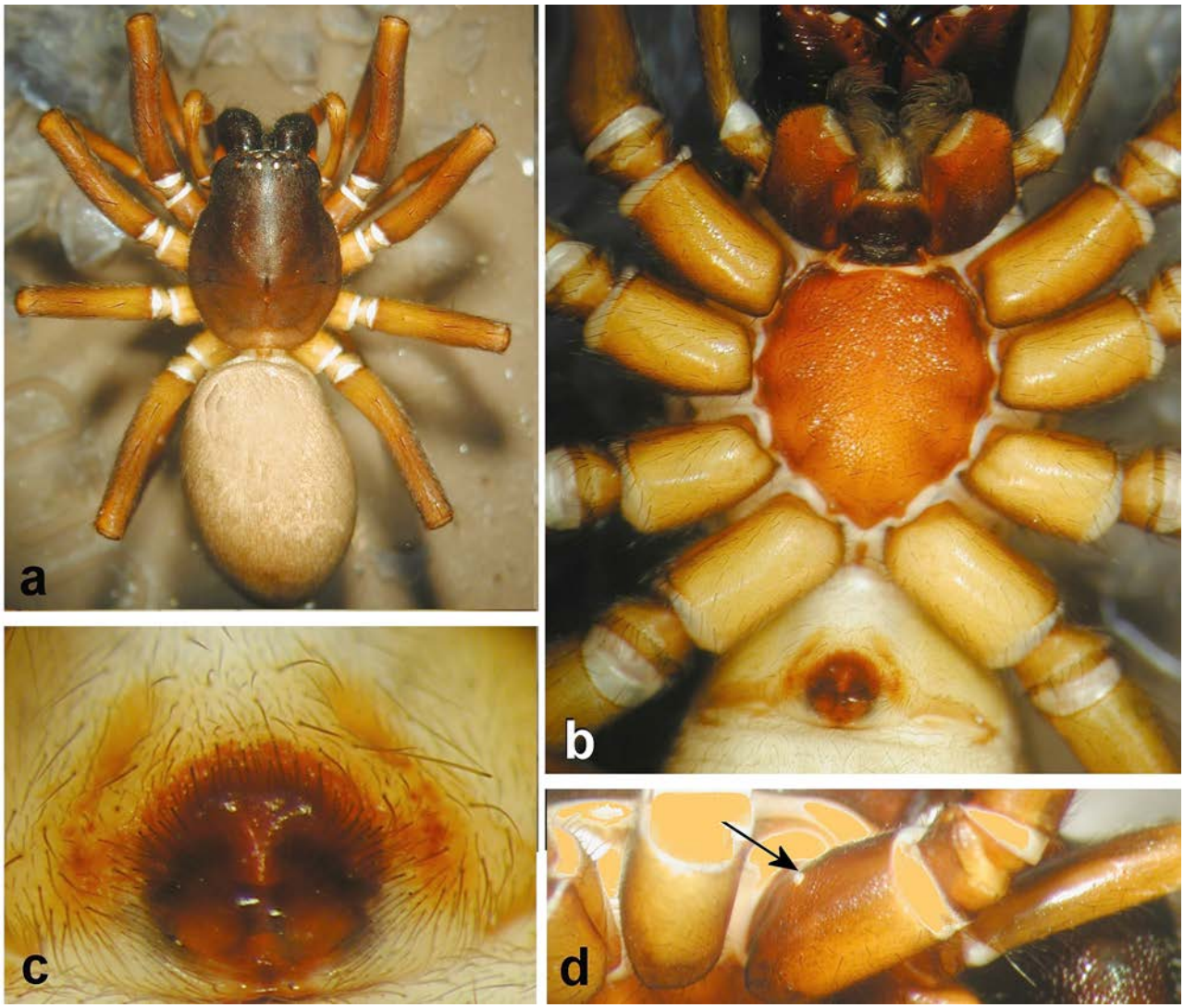


FIGURE 9. *Creugas gulosus* Thorell, 1878, female: a, habitus; b, venter; c, epigyne, ventral view; d, coxa I (right) and II (left), showing retrocoxal hymen (arrow).

Female QM S26460

Carapace 3.30 long, 2.55 wide. Abdomen 3.20 long, 2.44 wide.

Colour: carapace orange brown with darker bands marginally and on interstrial ridges; abdomen lightly mottled brown dorsally, with anterior medial pallid dagger shape flanked by two pallid dots; legs yellow brown without bands; genital region not sclerotised and without striations on booklung covers. Spines: as ♂ with strong

spines on ventral metatarsi I, II. Palp: tarsus subapically deepens and narrows to tuftless dentate claw. Epigyne (Fig. 9b, c): externally, two procurved ridges centrally forming longitudinal fossa posteriorly, with banana-shaped depression laterally from which insemination ducts arise and pass forward to broad spermatheca with small ental lobe; no paragenital weakness evident.

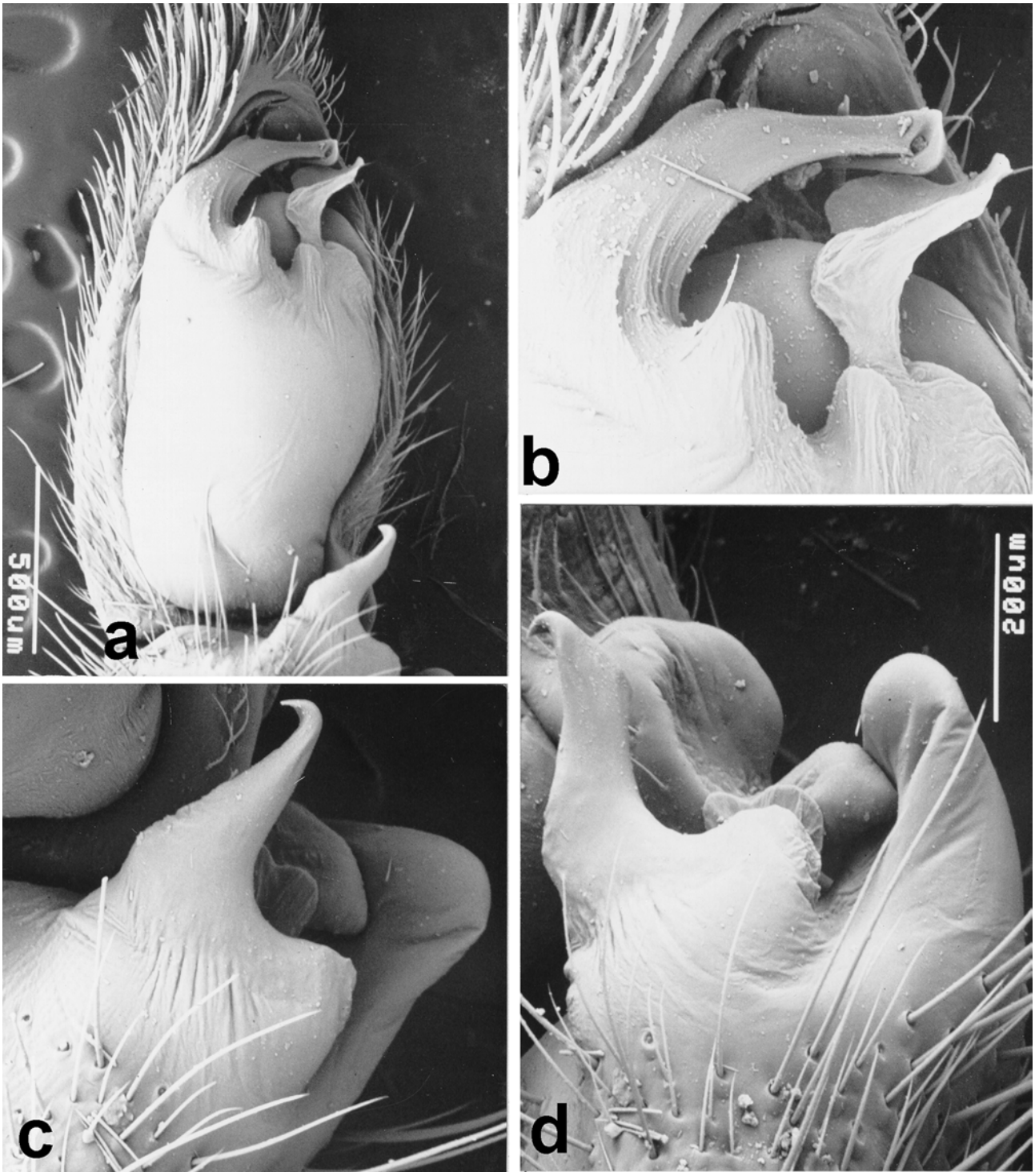
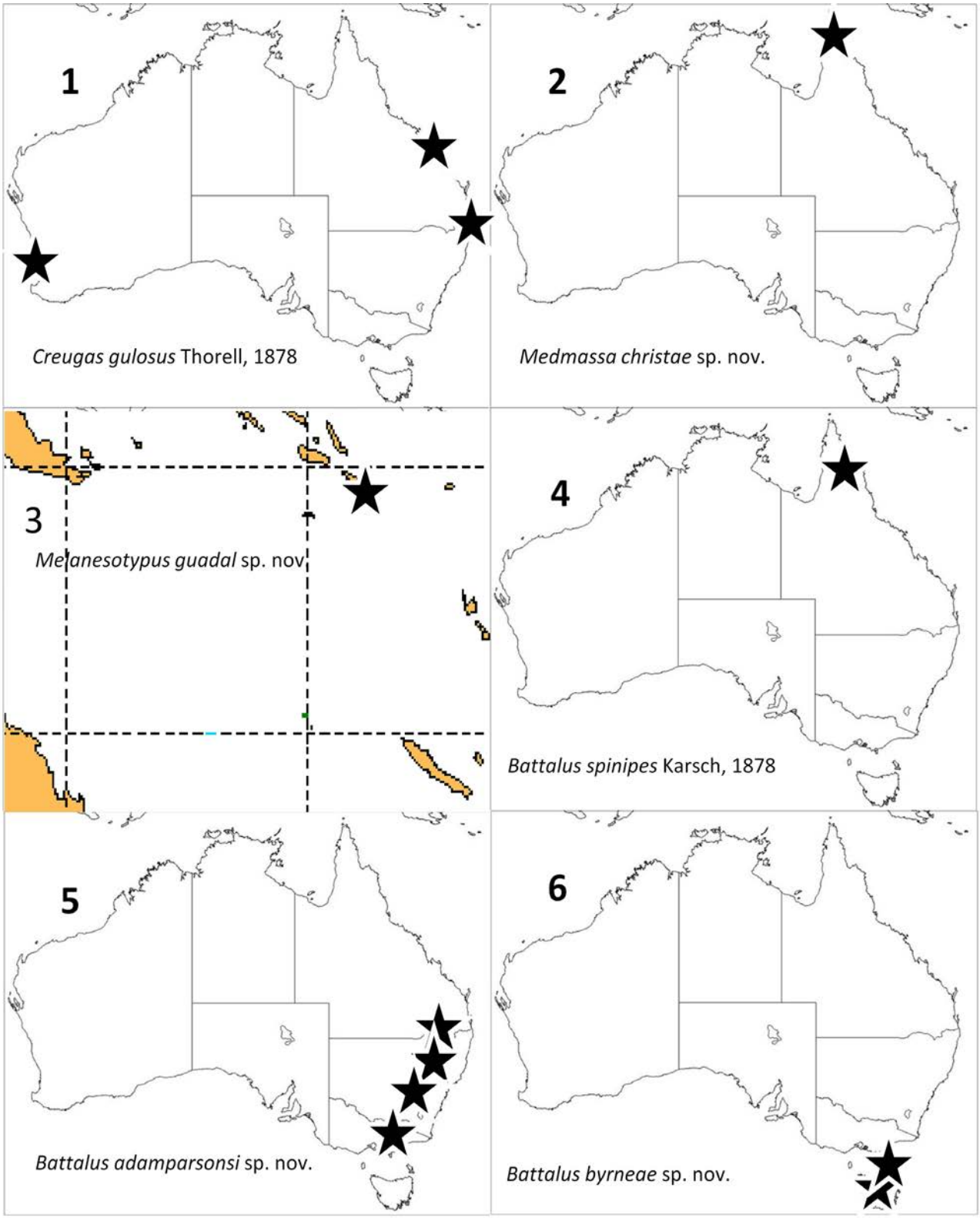


FIGURE 10. *Creugas gulosus* Thorell, 1878, male, scanning electron micrograph, male palp, ventral views. a, cymbium and bulb; b, embolus and conductor; c, tibial apophysis, ventral view (d).

Distribution and Habitat. Cosmotropical.Widespread in the Pacific, presumably introduced into Australia, where it has been recorded from houses in diverse locations.



MAPS 1–6. Records of species of Pacific Corinnidae: *Creugas gulosus* Thorell, 1878 (1), *Medmassa christae* sp. nov. (2), *Melanesotypus guadal* sp. nov. (3), and *Battalus* Karsch, 1878 (4–6).

Remarks. Although the type (a subadult female) of *Liocranum pallipes* has not been located in BMNH, MNHP, ZMH, ZMB, or NHW, it is clearly a corinnid and only two corinnids found in the region, *Creugas* and *Medmassa*, have the numerous pairs of strong spines on tibiae I, II. The narrower carapace shape (L. Koch, 1873, pl. 34, fig. 1) is more indicative of *Creugas* (than of *Medmassa*) which is here recorded from Queensland in 1936 on a Great Barrier Reef island, as are many others, indicating either dispersal on flotsam or being carried aboard ships.

The types of *Medmassa pusilla* Simon, 1896 are both juvenile. Both specimens are now pallid but have five strong paired spines ventrally in tibiae I and two pairs ventrally on metatarsi I, the tracheal scute is absent and there are three small erect spines on ventral femur I. Despite intensive and extensive arachnological collecting (1987–1991) in New Caledonia from the shoreline to the mountaintops, I have not found no endemic corinnid that has the strong paired tibial and metatarsal spines. The shape of the carapace is broad like *Creugas gulosus* and, on the evidence of that along with the strong paired spines and absence of a tracheal scute, that is what I consider this to be.

Medmassa Simon, 1887

Megaera Simon, 1877: 87. Type species by original designation: *Megaera frenata* Simon, 1877.

Medmassa Simon, 1887: clvii, replacement name for *Megaera* Simon, 1877 preoccupied in the Reptilia, Diptera and Mammalia by *Megaera* Wagler, 1830; Simon, 1898: 191, 195, 198; Brignoli, 1983: 557; Deeleman-Reinhold, 2001: 345; Haddad & Bosselaers, 2010: 3.

Astratea Thorell, 1890: 364; Deeleman-Reinhold, 1995: 44. Type species *Astratea insignis* Thorell, 1890. Genus first synonymised by Simon (1898: 191), restored by Deeleman-Reinhold, 1995 and synonymised by Deeleman-Reinhold, 2001.

Diagnosis. Differs from Australian Castianeirinae by the seven pairs of strong spines on tibiae I, II of males and females (Fig. 11d). Males of other species of *Medmassa* (no males are known from the Australian species) have only one loop of the spermatic duct not two (Deeleman-Reinhold, 2001; Haddad & Bosselaers, 2010), and so also differ from those of all Castianeirines; equally, females have a single central anterior epigynal ridge (Figs 11b, 135).

Australian species included: *Medmassa christae* sp. nov.

Distribution. Northern Australia, Africa, New Guinea, and south-east Asia.

Remarks. Deeleman-Reinhold (2001) and Haddad & Bosselaers (2010) reviewed the history of the genus and gave a complete description. Haddad (2013b) rejected the inclusion of *Medmassa* in the Castianeirinae, but rather include it in the Corinninae which is followed here (but see Ramírez 2014 for an alternative opinion). The genus is also keyed in the Castianeirinae for pragmatic reasons.

Medmassa christae sp. nov.

(Figs 2c, 11a–d, 135. Map 2)

Material. Queensland: holotype ♀, Stephens Island, Torres Strait, 9°30'S, 143°33'E, open woodland, 25–27 Nov 1986, J. Gallon, QM S12449.

Diagnosis. Differs from other known species of *Medmassa* in the crescentic external ridges and the dorsal plate on the female genitalia (Fig. 11b) and from *M. pulchra* (Thorell, 1881) in having seven pairs on spines on tibiae I, II ventrally, rather than only 4–5 pairs. Male unknown.

Etymology. In honour of Christa Deeleman, in small recognition for her studies of spiders, especially of south-east Asia.

Description holotype female QM S12449

Carapace 3.36 long, 2.96 wide. Abdomen 3.44 long, 2.64 wide, Total length 6.9.

Colour: carapace (including eye region) orange brown with brown web-like edges to striae along margins and in front of fovea, chelicerae orange brown; legs yellow brown with darker smudges distally on femora; abdomen blue black dorsally and extending laterally in diagonal band, leaving large anterior yellow ovoid area ventrally.

Sternum orange brown, coxae yellowish. Carapace: broad, strong arched caput, sloping gradually back from fovea, glabrous, smooth. Lateral profile of carapace (Fig. 2c): high but more or less flat or slightly arched for its length; marginally highest point behind fovea at shallowly sloping posterior declivity; eyes set behind clypeus edge. Eyes (Fig. 11a): AME large, *ca.* 2.5 x ALE = PME = PLE. Rows of similar width, front row straight, back procurved. Chelicerae (Fig. 2c): robust, slightly geniculate, conical process bearing 5–6 thick black bristles in front of fang; dentition 5R, 2P, fang long, groove oblique; retrolateral face of large chelicerae smooth. Labium subquadrate, maxillae with basal mound; inner edges strongly concave, outer convex. Sternum: broadly cordate, widest at II, domed; lightly setose, with intercoxal triangles. Legs: strong coxal bases hardly modified. Trochanters not notched. Setation simple, no feathery hairs. Scopula absent. Spines: strong, especially strong paired and on mound on tibiae and metatarsi I, II. I, II: fe pv1p1d3; ti v2.2.2.2.2.2.2; me v2.2, all long. III: fe p3d3r3; pa 0; ti p2d1r2v2.2.2; me p2r2v2.2.1. IV, missing. Palp: fe p1d2v3 erect; pa p2 1; ti p3d1; ta pv2 basal. Palp: claw small; brush of thick hair (not scopula) ventrally for distal 1/4 of tarsi. Abdomen (Fig. 11a): small triangular scute on anterior face; genital scute weakly sclerotised; tracheal ridge broad, scute small, weak. Post-epigastric sclerites weak, U-shaped, around booklung outer edge. Epigyne: large ovoid, projecting back past genital groove with sclerotised tongue-shaped dorsal plate internally; from back, sloping down and forward with single medial hollow with lateral crescentic ridges; duct leads from base of each ridge to single widely ovoid receptacula.

Distribution and Habitat. Known only from open forest on Stephens Island, Torres Strait.

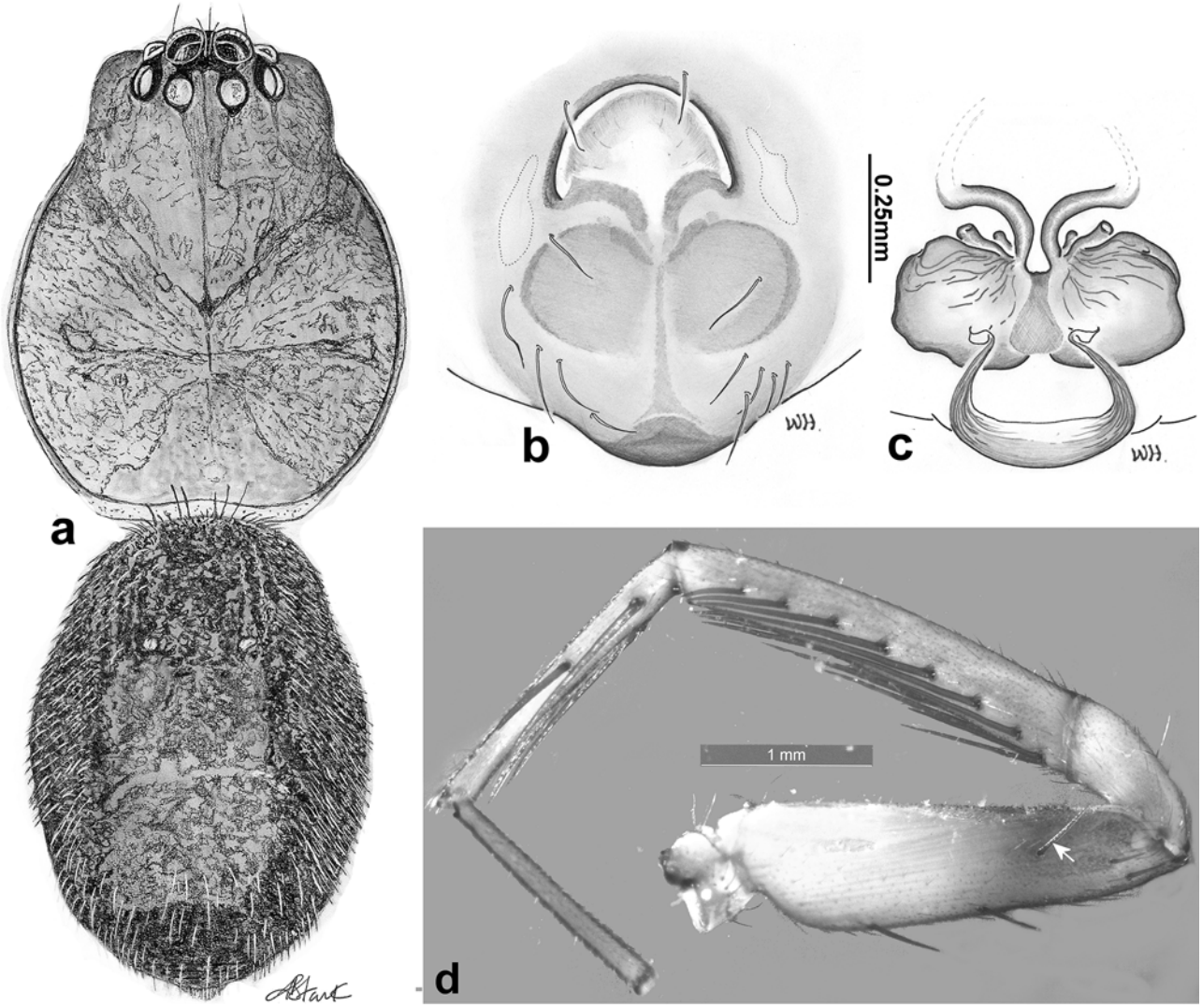


FIGURE 11. *Medmassa christae* sp. nov., holotype female, QM S12449: a, habitus; b, c, epigyne, external (b), and internal (c); d, femur I showing strong paired spines ventrally on tibia and metatarsus and proventral femoral spine (arrow).

Subfamily Castianeirinae Reiskind, 1969

Castianeirinae Reiskind, 1969: 179; Deeleman-Reinhold, 2001: 297. Type genus *Castianeira* Keyserling, 1879.

Diagnosis. Eyes in two gently curved rows: front always recurved; back usually procurved (Fig. 16b–f), sometimes recurved (Fig. 16a). Male palpal bulb (e.g., Fig. 15b) simple, pyriform, tapering to coniform embolus; conductor and median apophysis absent. Feathery hairs (Figs 6e, 65b) common on legs, carapace and abdomen. Abdominal scutes (Fig. 40a, c, d) usually present in males, often in females. Tracheal scute (Fig. 40d) usually present. Typically mimics, usually of ants, few of wasps and some apparently of spiders.

Australian Genera: *Battalus* Karsch, 1878, *Copa* Simon, 1886, *Disnyssus* gen. nov., *Iridonyssus* gen. nov., *Kolora* gen. nov., *Leichhardteus* Raven & Baehr, 2013, *Leptopicia* gen. nov., *Nucastia* gen. nov., *Nyssus* Walckenaer, 1805, *Ozcopa* gen. nov., *Poecilipta* Simon, 1897, *Ticopa* gen. nov. Two south-east Asian *Corinnomma–C. severum* (Thorell, 1881) and *C. javanum* Simon, 1905–as well as a new species and genus *Melanesotypus* from Solomon Islands are also treated here. *Medmassa* Simon, 1887 is treated in the key as females may seem castianeirine.

Key to Australian Castianeirinae genera and *Medmassa*

Males

1. Posterior eye row straight or recurved (Figs 15a, 16a) . . . 2
   Posterior eye row clearly procurved (Fig. 16b–f) . . . 3
2 (1). Carapace elongate, strongly dorsoventrally constricted medially (Fig. 15e, f) . . . *Melanesotypus*
   Carapace oval, not constricted medially (Fig. 16a . . . *Disnyssus*
3 (1). 7 pairs of strong spines on tibiae I and II (Fig. 11d) . . . *Medmassa*
   0–5 pairs of spines on tibiae I and II . . . 4
4 (3). Palp. Large retrolateral tibial apophysis present (Fig. 88a–c) . . . *Nyssus paradoxus*
   Palp. No tibial apophysis or tibial apophysis subtle (e.g., Fig. 85a) . . . 5
5 (4). Palp. Paracymbial spine large, distinct (Fig. 26d, e) . . . 6
   Palp. Paracymbial spine indistinct (Fig. 58b) or absent (Fig. 43a, b) . . . 11
6 5). Carapace slender, 1.6–2.0 times longer than wide (Figs 63a, 108a) . . . 7
   Carapace wider, 1.0–1.5 times longer than wide (like *Battalus*, Fig. 17e) . . . 8
7 (6). AME of similar size to other eyes (Fig. 107f); embolus tip coiled (Fig. 107a); ventral scute present . . . *Poecilipta*
   AME much larger than other eyes (Figs 3f, 63a); embolus tip straight (Fig. 63e); ventral scute absent . . . *Leptopicia*
8 (6). Chelicerae large with long fang and groove (Fig. 24d); retrocoxal (I) hymen absent/minute . . . 9
   Chelicerae normal with short fang (Fig. 5c); retrocoxal (I) hymen distinct (e.g., Fig. 9d) . . . 10
9 (8). Embolus base smooth (Fig. 20d) . . . *Battalus*
   Embolus base scaly (Fig. 134b) . . . *Ticopa*
10 8). Carapace and abdomen with bands or spots of white feathery hairs (Figs 79b, 80c, 93a) . . . *Nyssus*, part
   Carapace and abdomen without white feathery hairs (Fig. 92a) . . . *Ozcopa*
11 (5). Eye group small (*ca*. 0.4 of headwidth, Fig. 16e); legs very long, leg I 4–6 times carapace length (Fig. 51c) . . . *Kolora*
   Eye group large (*ca*. 0.7 of headwidth, Fig. 36a); legs short (Fig. 35) . . . 12
12 (11). Carapace slender, 1.6–2.0 longer than wide (Fig. 66b); eyes set on mound directed forward (Figs 1e, 66d, 79c); tibiae I and II weakly spinose or aspinose . . . *Nucastia*
   Carapace wider, 1.0–1.5 (Fig. 60a); eyes behind clypeus; tibiae I and II spinose . . . 13
13 (12). Palpal femur with ventral prong or bulge (Fig. 57c) or distally incrassate (Figs 55f, 59e); paracymbial spine on retrodorsal edge of cymbium (Fig. 57b) . . . *Leichhardteus*, part
   Palpal femur without prong; cymbium without paracymbial spine (e.g., Fig. 36b, c) . . . 14
14 (13). Embolus tip straight, tapering, spine-like (Fig. 36b) . . . *Copa kabana*
   Embolus tip spiralled (Fig. 54a) . . . 15
15(14). Femora III and IV with deep ventral notch distally (Figs 6d, 42d) . . . 16
   Femora III and IV gradually taper distally to joint (Fig. 61a inset) . . . *Leichhardteus*, part *(L. strzelecki)*
16 (15). Carapace surface pitted, iridescent (Fig. 39) . . . *Iridonyssus*
   Carapace surface hirsute, smooth, not iridescent (Figs 1c, 2a) . . . *Nyssus*, part

Females

1. Posterior eye row straight or recurved (Figs 15a, 16a) . . . 2
   Posterior eye row clearly procurved (Fig. 16b–f) . . . 3
2(1). Carapace elongate, strongly constricted medially (Fig. 14f) . . . *Melanesotypus*
   Carapace oval, not constricted medially (Fig. 16a) . . . *Disnyssus*

3(1). 7 pairs of strong spines on tibiae I and II (Fig. 11d) . . . . . *Medmassa*
0–4 pairs of spines on tibiae I and II 4
4 (3). Femora III and IV with distal femoral constriction (Fig. 6d) 5
Femora III and IV with little (Fig. 61a inset) or no distal constriction 8
5 (3). Carapace and dorsal abdominal scute pitted and iridescent (Fig. 39) 6
Carapace and dorsal abdomen hirsute, scute not iridescent or pitted (Figs 1c, 2a) . . . . . *Nyssus*, part
6 (5). Legs I–IV all of similar length (Fig. 40a); carapace less than 1¾ times as long as wide (Fig. 40a) 7
Legs IV much longer than I–III (Figs 3a, 99a–c); carapace twice as long as wide (Fig. 98a–d) . . . . . *Poecilipta*, part
7 (6). Enlarged serrate setae present on cheliceral fang mound (Fig. 4e) . . . . . *Iridonyssus*, part
No enlarged serrate setae on cheliceral fang mound . . . . . *Nyssus avidus* species group
8(4). Retrocoxal (I) hymen absent 9
Retrocoxal (I) hymen present (e.g., Figs 9d, 48e) 10
9(8). Paragenital zone weak (Fig. 131e); chelicerae with enlarged ornate setae anterior to fang (Fig. 131c); carapace strongly marked (Fig. 131a) . . . . . *Ticopa*
Paragenital zone entire, fully sclerotised (as in Fig. 36d); chelicerae with weak setae anterior to fang; carapace with marginal band only (Fig. 36a) . . . . . *Copa*
10(8). Basal femora of legs bulbous (Fig. 51a) then narrowing quickly; eye group small (*ca*. 0.4 of headwidth) and set high on clypeus (>=4 AME's) (Fig. 16e); legs very long, leg I 4–6 times carapace length (Figs 48a, 51c) . . . . . *Kolora*
Femora of legs similar in length throughout (e.g., Fig. 68a); eye group wider (*ca*. 0.5–0.7 of headwidth; as in Figs 16f, 65c) and clypeus low; legs much shorter (Figs 79c, 99a–c) 11
11(10). Carapace slender, 1.6–2.0 longer than wide (Figs 63a, 107f) 12
Carapace wider, 1.0–1.5 (Fig. 16a, b) 14
12(11). Eye group about 0.7 or more of headwidth (Fig. 63a); caput narrows from thorax (Fig. 63a) 13
Eye group only about 0.5 of headwidth (Fig. 65c); caput widens from thorax (Fig. 65c) . . . . . *Nucastia*
13(12). AME similar in size to other eyes (Fig. 107f); spermathecae two almost straight tubes without distinct folds (Fig. 100d); post-epigastric sclerites present (e.g., Fig. 7a) . . . . . *Poecilipta*, part
AME much larger than other eyes (Fig. 63a); spermathecae highly folded (Fig. 63d); post-epigastric sclerites absent . . . . . *Leptopicia*
14(11). Chelicerae with long fang and long groove, and teeth almost on vertical groove, remote from fang base (Fig. 25d) . . . . . *Battalus*, part
Chelicerae large but fang short, "normal", and teeth near base of fang on almost transverse groove (Fig. 5c) 15
15(14). Paragenital zone intact, entire, fully sclerotised (Fig. 36d) 16
Paragenital zone weak (Fig. 7a) 18
16(15). Carapace very hirsute, with white hair spots among black hairs (Figs 79b, 80c, 93a) . . . . . *Nyssus*, part
Carapace not as above 17
17(16). Epigynal fossae with concave ridges (Fig. 23a) . . . . . *Battalus*, part
Epigyne with large diagonally oval fossae (Fig. 93g) . . . . . *Ozcopa*
18(15). Carapace and abdomen with coat of white feathery hairs forming spots and/or stripes (Figs 73a–d, 74b) . . . . . *Nyssus*, part
Carapace and abdomen without white feathery hairs 19
19(18). Enlarged serrate setae on cheliceral fang mound (Fig. 29e) . . . . . *Battalus boolathana*
No enlarged serrate setae on cheliceral fang mound . . . . . *Leichhardteus*

Non-Australian Castianeirinae

Corinnomma Karsch, 1880

Corinnomma Karsch, 1880: 374, type species by original designation *Corinna severa* Thorell, 1877: 481; Deeleman-Reinhold, 2001: 316

Diagnosis. *Corinnomma* differs from *Castoponera* by the gradually sloping anterior abdomen (Fig. 12a, rather than the overhanging edge) and from *Poecilipta* in the dorsal scute being fused to the ventral scute (Fig. 13e) and in the cylindrical palpal tibia without ventral concavity (Fig. 13b).

Distribution. Presently known from south-east Asia and Africa but the African species seems misplaced.

Remarks. Although all species of Asian *Corinnomma* treated by Deeleman-Reinhold (2001), except for *C. thorelli* Simon, 1905, have a paracymbial spine, the significance of the character in *Corinnomma* is not clear. Certainly, in some Australian genera, the paracymbial spine can be present or absent.

Misplaced Species. Haddad (2006) noted that, unlike the Asian species, African species of *Corinnomma* have a slightly recurved posterior eye row, and as here noted, lack a paracymbial spine. Hence, *Corinnomma olivaceum* Simon, 1896, *Corinnomma semiglabrum* (Simon, 1896) and *Corinnomma lawrencei* Haddad, 2006 are considered misplaced in the genus.

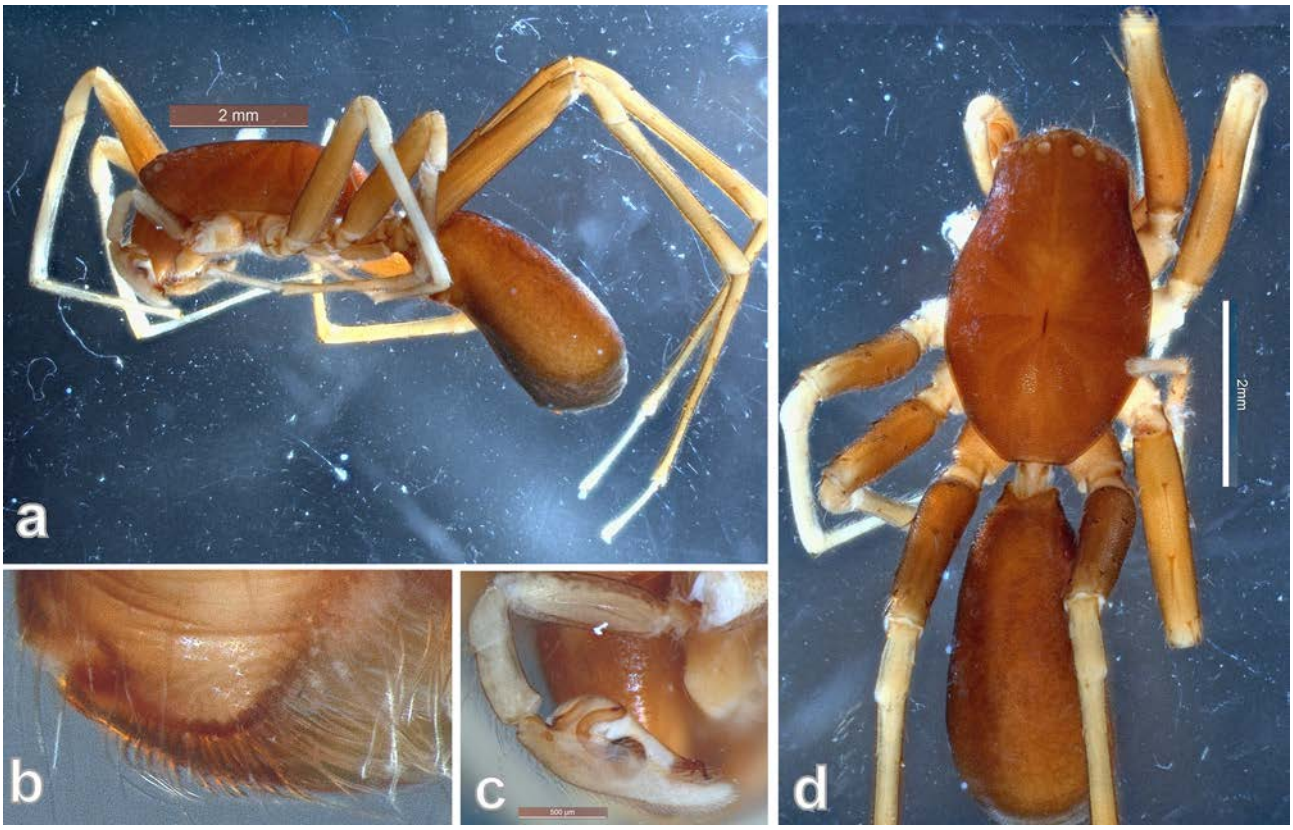


FIGURE 12. *Corinnomma severum* (Thorell, 1881), male MNHP: a, d, habitus, lateral (a) and dorsal (d) views; b, cheliceral fang mound with enlarged setae, frontal view; c, palpal femur to cymbium and bulb, retrolateral view.

Corinnomma severum **(Thorell, 1877)**
(Fig. 12a–d)

Corinna severum Thorell, 1877: 481.
Corinnomma severum: Karsch, 1880: 374. For full synonymy, see Deeleman-Reinhold, 2001: 318.

Material. **Indonesia**: 1♂, Sumatra Median, Dollok, MNHNP 24197, det. as *Corinnomma* by E. Simon.

Diagnosis. Males differ from those of *C. javanum* in the screw-like embolus tip (see Deeleman-Reinhold, 2001, fig. 469) and females in the relatively larger, closely spaced CO.

Supplementary description. Male palp with socketed sessile paracymbial spine, tibia cylindrical with slightly raised distal edge. Male and female: femora III, IV without distal constriction; three pairs of long spines on ventral tibiae I and II, two similar pairs on metatarsi I, II; distinct but light scopula for metatarsi and tarsi I, II. Carapace of female with fine pustules, larger in males. Females with small (anterior one-sixth) dorsal scute but no ventral scute; no paragenital brackets; chelicerae with low fang shield and 8–9 long curved serrate bristles; retrolateral face of chelicerae smooth. Male with dorsal scute for full length and wraps around abdomen to ventral edge and slopes gradually to anterior edge; laterally fused to genital scute and covering book lungs; distinct ventral scute (Fig. 12a). Carapace profile long and flat with steep anterior and posterior edges; female and to lesser extent male with V-shaped depression anterior to fovea. Pedicel without collar. Tracheal scute broad, curved at edges in male and female.

Remarks. Deeleman-Reinhold, 2001: fig. 465 shows a full scute indicative that the type is a male (according to the description and my observations) but the caption states it is the female.

***Corinnomma javanum* Simon, 1905**
(Fig. 13a–g)

Corinnomma severum javanum Simon, 1905: 68.
Corinnomma javanum: for full synonymy, see Deeleman-Reinhold, 2001: 318.

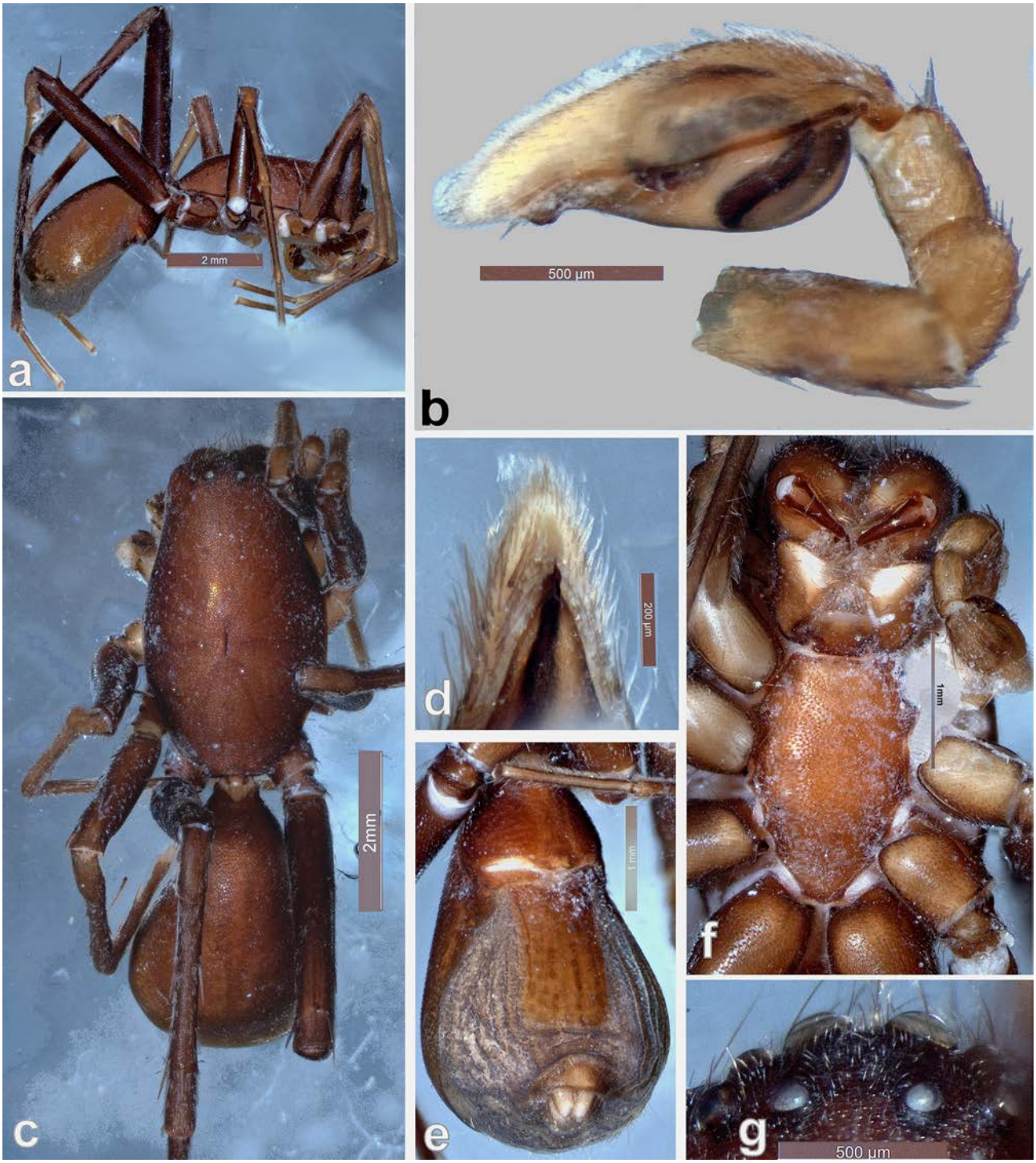


FIGURE 13. *Corinnomma javanum* Simon, 1905, male, WAM T74053. a, c, habitus, lateral (a) and dorsal (c) views; b, palp femur to cymbium and bulb, retrolateral view; d, embolus tip and cymbium, ventral view; e, abdomen, ventral view showing post-epigastric sclerite and genital scute fused to dorsal scute; f, chelicerae, maxillae, labium and sternum, ventral view; g, eyes, dorsal view.

Material: **Singapore:** 1 ♂, Central Catchment Nature Reserve, Sime Trail, 1°21'12"N, 103° 48'21"S, 1 May 1989, J. Koh, JK.89.05.01.0013, LKCNHM; 1 ♂, Kent Ridge wasteland, 1°12'45"N, 103° 46'34"S, 7 Sep 1992, J. Koh, JK.92.09.07.0001, LKCNHM; 1♂, Botanic Gardens, 23 Feb 1988, A.M. Andersen, WAM T74053.

FIGURE 14. *Melanesotypus guadal,* gen. et sp. nov., allotype female (a–d, f) & holotype male (e), BMNH: a, habitus; b, pedicel, dorsal view; c, carapace, dorsal view; d, cephalothorax and abdomen, ventral view; e, f, habitus, lateral views of male (e) and female (f).

Diagnosis. Males differ from those of *C. severum* in the highly reduced embolus tip (Fig. 13d) and females in the relatively smaller, widely spaced CO.

Supplementary description. Male. Palp with socketed sessile paracymbial spine; tibia cylindrical with diagonal distal edge, ventrally. Femora III, IV without distal constriction (Fig. 14a); two pairs of long spines on ventral tibiae I and II, two similar pairs on metatarsi I, II; distinct but light scopula for metatarsi and tarsi I, II. Carapace with fine setose pustules. Dorsal scute for full length, anterior edge sloping back, dorsal scute wraps around abdomen to ventral edge and slopes gradually to anterior edge; fused to pedicel and laterally fused to genital scute and covering book lungs; distinct ventral scute (Fig. 13e). Carapace profile long and flat with steep anterior and posterior edges; with V-shaped depression anterior to fovea. Pedicel with short collar. Tracheal scute broad, curved at edges.

Melanesotypus gen. nov.

Diagnosis. Males differ from those of *Apochinomma* Pavesi, 1881 in the presence of a paracymbial spine (Fig. 15b–d) and from those of *Sphecotypus* in lacking a well-developed mentum and a subquadrate anterior sternal projection, Bonaldo, *in litt*.). Carapace strongly constricted medially dorsoventrally (Fig. 14e, f); back eye row much wider than front row and clearly recurved (Fig. 15a); male palpal bulb simple (Fig. 15b), as in most castianeirines.

Description. See description of *M. guadal* sp. nov.

Type Species: *Melanesotypus guadal* sp. nov.

Etymology. The generic name derives from the Melanesian islands.

Melanesotypus guadal sp. nov.

(Figs 14a–f, 15a–f. Map 3)

Material. **Solomon Islands**: holotype ♂, paratype (allotype) ♀, Guadalcanal, Mt Austen, [9°29'S, 159°59'E], 13 Nov 1964, P. Greenslade, BMNH.

Diagnosis. *Melanesotypus guadal* differs from *Sphecotypus birmanicus* (Thorell, 1897) in the much less constricted eye region of the carapace (Fig. 14e, f), the broader embolus tip (Fig. 15b) and the presence of a paracymbial spine (Fig. 15b–d).

Etymology. The species epithet is a noun in apposition from the type locality.

Description. Holotype male BMNH

Carapace 3.92 long, 1.60 wide. Abdomen 2.56 long, 1.76 wide. Total length 6.5.

Colour: carapace uniformly dark brown; abdomen shiny black; leg I black basally, rest yellowish; legs II–IV faded black; ventrally, sternum, coxae and abdomen black. Carapace: strong saddle basally with long sharply defined caput for *ca*. 1/3 length of carapace. Cuticle with fine points (as in Fig. 14b) along edges. Thoracic region domed medially, fovea absent. Posterior margin strongly constricted from coxae IV, with gradual slope. Eyes: occupy *ca*. 0.5 width of head in broad spaced group. Eight eyes in two recurved rows. AME>ALE>PME>PLE. AME *ca*. 1.5 x diameter of ALE, and *ca*. 1 diameter apart and clypeus = AME diameter. PME *ca*. 3–4 of their diameters apart. Back row much wider than front. Chelicerae: small, vertical; fangs short, transverse. Maxillae: long with outer edge broadly concave, forming *Clubiona*-like maxillae, labium longer than wide. Sternum: very long, narrow, deeply indented for each coxa. Long cylindrical sclerotised pedicel. Legs: I and II distinctly thinner than III and IV. Scopula absent but ventral tarsi with dense cover of thick setae. Claw tufts dense, enclosing claw. Tarsal trichobothria of similar length for distal half and, with metatarsal trichobothria, all short, recurved. Femora I and II bulbous basally, 2–3 times thicker than distally. Pair of preening combs ventrally on distal metatarsi IV. Spines: all close to leg (obliquely angled) and weak. I: fe p1; ti v2.2; me v2.2. II: fe 0; ti v2.2; me v2.2. III: fe p2 as distal pair; r1; pa 0; ti p2r2v1.2; me p3d1 distal r3v2.2.2. IV: fe d2 as distal pair d1r1; pa 0; ti p2r2v2.2.2; me p3r3v2.2.3. Palp fe d2; pa p1d1; ti p1 + retrolateral line of bristles. Palp: short, tibia without ventral groove; RTA absent; cymbium short with distodorsal scopula; complex folded paracymbial spine plate retrobasally (Fig. 15b–d); bulb with long vertical folded spermatic duct (Fig. 15b); bulb constricts predistally with wide pre-embolic ridge, broad thick tapered embolus sweeps across ridge. Abdomen: with full scute; tracheal scute broad, transverse but small; weak genital scute.

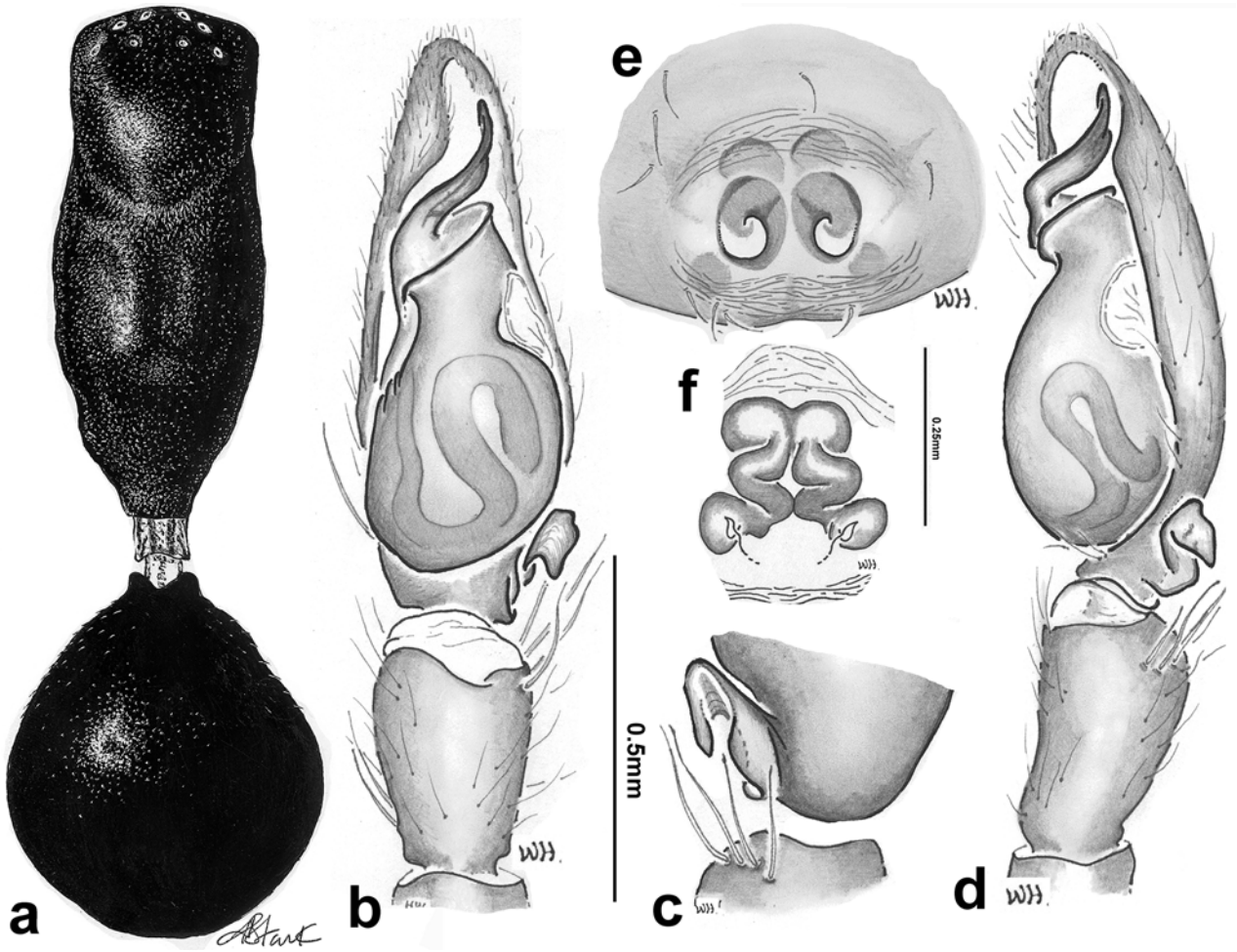


FIGURE 15. *Melanesotypus guadal,* gen. et sp. nov. Holotype male, BMNH, a–d: a, habitus; b–d, palpal tibia and cymbium, ventral (b), dorsal showing paracymbium spine (c), and retrolateral (d) views. Allotype female, epigyne, e–f: external (e) and internal (f) views.

Allotype Female as male, except:

Carapace 4.40 long, 1.92 wide. Abdomen 3.12 long, 2.88 wide. Total length 7.4.

Colour: femur I ventrally pallid, II with two long bands dorsolaterally, I and II generally darker. Carapace: shallow depression on anterior face of thoracic dome, caput dome much lower; margin serrate. Chelicerae: short, vertical, not projecting forward, dense group of black fang setae; dentition 2R, 2P; boss very small. Labium: strong precoxal triangles; intercoxal triangle extends up to but not fused to carapace on I/II, II/III and III/IV; widest point at coxae II, with strong narrowing and indentation at each coxae; short ridge between coxae IV not fused to pedicel. Pedicel: with long sclerotised cylinder bearing lateral keels and medial keel; only short gap, *ca.* 1/10 length of pedicel ring, to leading edge of genital scute. Legs: RCH not evident; scopula absent; trichobothria longer on tarsi subcentrally; claw tufts high, dense; ventral tarsi and metatarsi with thick, obliquely set hairs. Spines: I: fe p1d1; ti v.2.2. II: fe p1d1; ti v2.2; me v2.2. III: fe 3 on distal edge; pa d1; ti p2r2v2.2 (bs); me p3r3v2.2.3. IV: fe 3 on distal edge; pa d1; ti p2r2v2.2.2; me p3r3v2.2.3. Palp: fe d1; pa p1d1; ti p2d1; ta p2 basal. Palp: emerges well back off front edge of carapace; tarsus pre-apically incrassate then tapers to short blunt point, claw distinct, dentate. Abdomen: short, spherical; large subcircular shiny dorsal scute extends for 3/4 length and slightly onto lateral faces, without feathery hairs, light pile of very fine hairs; genital scute without collar; post-epigastric sclerites short. Translucent, triangular small colulus present. Tracheal scute a wide ovoid zone with rounded medial ridge. Epigyne: a distinctly raised mound with small lateral fossae, without paragenital brackets. Spinnerets: all short; 3 large spigots on PMS, 2 on PLS.

Distribution and habitat. Known only from rainforest at Mt Austen, Guadalcanal, Solomon Islands.

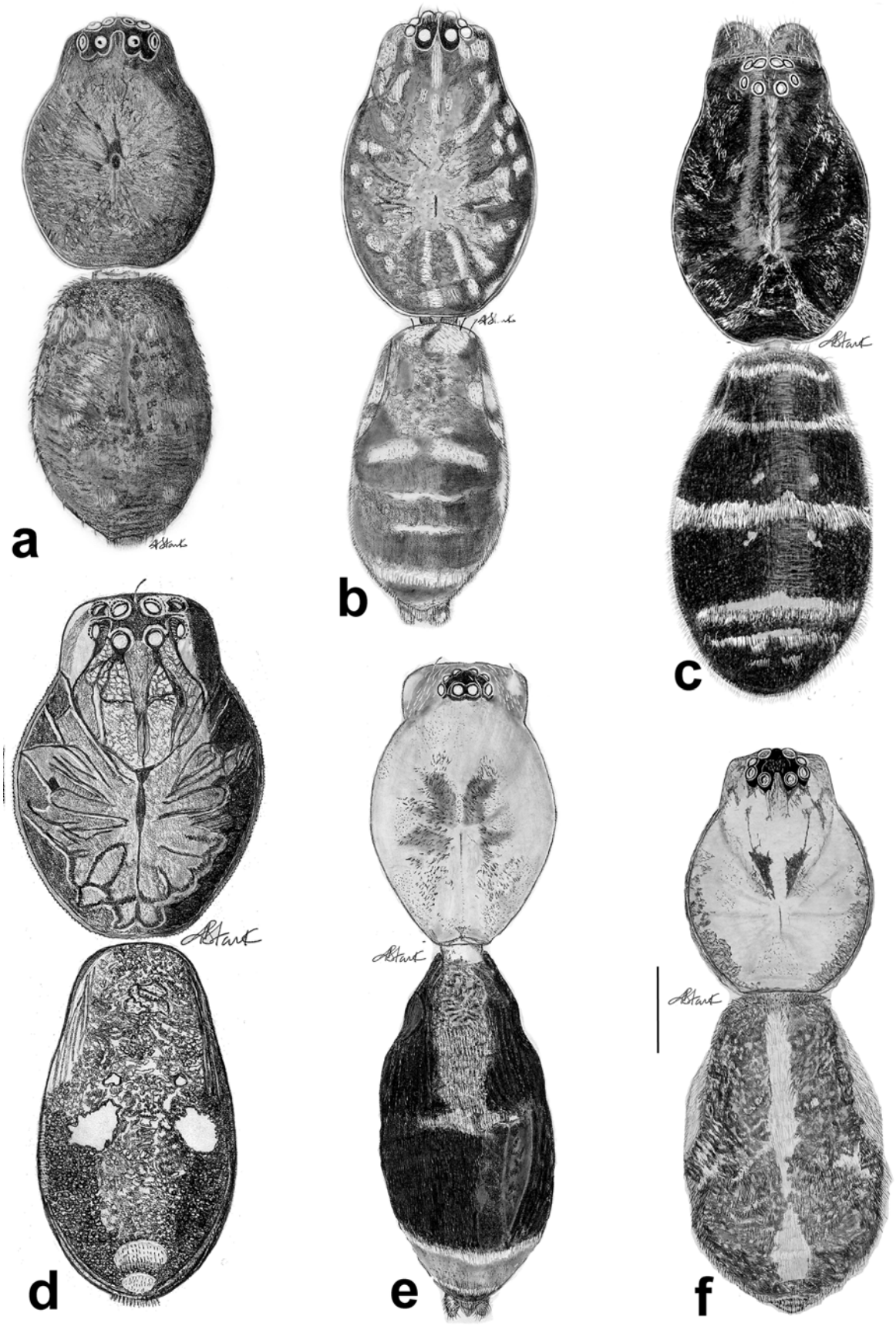


FIGURE 16. Australian Castianeirinae, habitus: a, *Disnyssus helenmirrenae* sp. nov.; b, *Nyssus insularis* (L. Koch); c, *Nyssus jaredwardeni* sp. nov., d, *Leichhardteus bimaculatus* Baehr & Raven, 2013; e, *Kolora cooloola* sp. nov.; f, *Ozopa colloffi* sp. nov.

Australian Castianeirinae

Battalus Karsch, 1878

Battalus Karsch, 1878: 816. Type species by monotypy, *Battalus spinipes* Karsch, 1878; Simon, 1897a: 168. The gender is masculine.

Diagnosis. Males differ from those of all other genera in the combination of a paracymbial spine (e.g., Fig. 20e, save for *B. helenstarkae* sp. nov. and *B. boolathana* sp. nov.) and large diagonal fangs (Fig. 25d), and from those of *Ticopa* in that the pre-embolic lobe is often tubular (Fig. 21c, e) but not scaly or lamellate; females differ from those of *Leichhardteus* in the large spines on the fang shield (Figs 20f, 24e) and from both *Leichhardteus* and *Ticopa* in the more convoluted spermathecae (Fig. 24g).

Description. Carapace broad with distinct anterior constriction, posterior margin deeply indented; fovea short, deep. Cuticle of carapace and legs, especially femora, almost glabrous but finely rugose. White feathery hairs scattered over carapace. Lateral profile of carapace (Fig. 2f): caput arched anteriorly, sloping through slight arch in shallow slope from fovea along posterior declivity; highest point just behind eye group; eyes set behind clypeus edge. Retrolateral face of large chelicerae smooth. Eight eyes (Fig. 18a) in two rows: front recurved, back clearly procurved; AME clearly the largest, within a diameter of each other and above carapace margin, group about twice as wide as long; ALE set lower, front row on vertical face, back horizontal. Chelicerae robust with long fang, grossly thickened in males of *B. diadens* sp. nov., (Fig. 25d); fang diagonal in resting position; furrow longitudinal with one small and one large tooth on promargin and two similar large on retromargin; all teeth set at *ca*. half furrow length; low cheliceral lobe with horizontal normal setae. Chelicerae of females with distinct fang shield with enlarged setae (Figs 20f, 22e, 24e, 27h, 29e); in males of *B. helenstarkae* sp. nov., a large conical spine-bearing process (Fig. 30c) occurs near fang shield. Maxillae (Fig. 31a): short with short wide basal central ridge; ectal margins distinctly concave; ental edge sloping; serrula long. Labium clearly wider than long. Sternum broad, shield-shaped, with intercoxal triangles on I and II. Coxae with distinct basal spur retrobasally on II–IV; RCH present or absent. Trochanters with shallow notches *ca.* 3–4 times wider than deep (Fig. 22b). No feathery hairs on legs. Spines: tibiae I and II ventrally with 3 weak pairs plus 1 shorter distal pair; metatarsi I and II with longer stronger spines, v2.2; females with strong spines on ventral palpal femur (Fig. 27i). Claw tufts dense, as high as claws, similar size on I and IV with about 5 small teeth. Light scopula on ventral tarsi I–IV. Abdomen (male) with small dorsal scute (Fig. 20a) and weak genital scute without thickened anterior lip. Tracheal spiracle (Fig. 29f) posteriorly with ridge *ca*. 2–3 times wider than long, with light sclerotisation in wide diamond. Male palp: cymbium with distinct ovoid retrobasal paracymbial spine (Figs 17c, 20e, 21d, 22g, 26 c, d) and cluster of short hairs and small spines apically around distinct groove to tip, basally with 2 spines or paracymbial spine absent; bulb with scooped pre-haematodochal plate; parategular lobe small, tegulum with double-looped sperm duct and twisted short embolus with low predistal keel; tibia with proventral concavity. Epigyne: a pair of crescentic ridges (forming biconvex pair) "directed" posteriorly, i.e., ridge anterior. Fertilisation duct wide, diagonally backwards directed. Spermathecae transverse but short and folded several times back on itself.

Distribution and Habitat. The genus is known in all Australian states, save for the Northern Territory. *Battalus* species tend to be more widespread than those of other corinnid genera, e.g., *Leichhardteus*.

Conservation Issues. The limited reported distribution of some species primarily reflects limited sampling. Admission to Short Range Endemic status (see Harvey 2002) thus awaits better sampling for clarification.

Remarks. *Battalus* was long included in the Gnaphosidae; Simon (1897a) questioned whether it was congeneric with *Supunna*; Ovtsharenko (*in litt*.) saw similarities with *Supunna*.

Species Included: *Battalus adamparsonsi* sp. nov., *B. baehrae* sp. nov., *B. bidgemia* sp. nov., *B. boolathana* sp. nov., *B. byrneae* sp. nov., *B. diadens* sp. nov., *B. helenstarkae* sp. nov., *B. microspinosus* sp. nov., *B. rugosus* sp. nov., *B. spinipes* Karsch, 1878, *B. wallum* sp. nov., *B. zuytdorp* sp. nov. and *Medmassa semiflava* Simon, 1896.

Key to species of *Battalus*

Males (males of *B. semiflavus* unknown)

1. Paracymbial spine present (Figs 17c, 20e, 21d, 22g, 26 c, d, 32b) 2

	Paracymbial spine absent (Figs 28c, d, 30a, b)	10
2(1).	Coxae I and II rugose ventrally (Fig. 31a, e)	*B. rugosus*
	Coxae I and II smooth ventrally (Fig. 31d)	3
3(2).	Black spine-like setae ventrally on tarsi II–IV (Fig. 31b)	*B. microspinosus*
	No such setae on tarsi II–IV	4
4(3).	Paracymbial spine sinuous in retrolateral view (Fig. 33a, e)	*B. zuytdorp*
	Paracymbial spine low, almost domed, not sinuous in retrolateral view (Fig. 28b)	5
5(4).	Cymbium with distodorsal setae forming transverse lines (Fig. 31c); embolus tip long (Fig. 28a, b)	*B. bidgemia*
	Cymbial setae not in transverse bands	6
6(5).	Paracymbial spine as wide apically as basally or at least not coniform (Fig. 17c)	7
	Paracymbial spine coniform (Fig. 26c–e)	*B. wallum*
7(6).	Paracymbial spine very low, not anvil-shaped (Fig. 23e)	8
	Paracymbial spine anvil-shaped (Fig. 21d)	*B. adamparsonsi*
8(7).	Thoracic region of carapace with dark scallop marks centrally (Fig. 17a)	*B. spinipes*
	Ocular region of carapace black (Fig. 25a–c)	9
9(8).	Carapace all black (Fig. 22a)	*B. byrneae*
	Carapace only dark anteriorly, if at all (Fig. 25a–c)	*B. diadens*
10(1).	Cheliceral shield mound absent	*B. boolathana*
	Cheliceral shield mound conical with spine (Fig. 30c)	*B. helenstarkae*

Females (females of *B. baehrae, B. bidgemia,* and *B. zuytdorp* unknown)

1.	Coxae I rugose ventrally (Fig. 31a, e)	*B. rugosus*
	Coxae I smooth ventrally (Fig. 31d)	2
2(1).	Black spine-like setae ventrally on tarsi II–IV (Fig. 31b)	*B. microspinosus*
	No such setae present on tarsi II–IV	3
3(2).	Ventral spines on palpal femur absent	4
	Strong ventral spines on palpal femur	9
4(3).	Tibia II with 1–2 prolateral spines	5
	Tibia II without prolateral spines	*B. adamparsonsi*
5(4).	Spermathecal head very small (Fig. 18d)	*B. spinipes*
	Spermathecal head larger (e.g., Figs 23b, 24g)	6
6(5).	Spermathecal portion anterior to fossae short, at most the same distance as from anterior edge of fossae to epigastric furrow (Fig. 23b)	7
	Spermathecal portion anterior to fossae long, about 1.5 times distance of anterior fossae to epigastric furrow (Fig. 26f)	8
7(6).	Carapace all black (Fig. 22a)	*B. byrneae*
	Carapace only dark anteriorly, if at all (Fig. 25a–c)	*B. diadens*
8(6).	Fossae close to epigastric furrow (Fig. 30j)	*B. boolathana*
	Fossae almost their length from epigastric furrow (Fig. 26f)	*B. wallum*
9(3).	Fossae close to epigastric furrow (Fig. 30d), broadly ovoid and only about two diameters apart	*B. helenstarkae*
	Fossae more than their length from epigastric furrow (Fig. 34a), narrowly ovoid and at least five diameters apart	*B. semiflavus*

***Battalus spinipes* species group**

Diagnosis. Males with bulb tip with narrow predistal keel and sinuous embolus.

Species included*: B. spinipes* Karsch, 1878, *B adamparsonsi* sp. nov.*, B. byrneae* sp. nov., *B. diadens* sp. nov. and *B. wallum* sp. nov.

***Battalus spinipes* Karsch, 1878**

(Figs 17a–g, 18a–d. Map 4)

Battalus spinipes Karsch, 1878: 817; Moritz & Fischer, 1988: 148.

Material. **Queensland**: holotype ♀, "Austral. Sept [northern Australia]", coll. E. Daemel, ZMB 2146, examined. **Non-types**: **Queensland:** ♂, McIlwraith Range, Leo Creek Track, J. Thompson, M. Moulds, AM KS44293.

Diagnosis. The male differs from those of *B. wallum* sp. nov. in the small nubbin-like paracymbial spine and the more subtle keel predistal of the embolus. The female differs from those of *B. microspinosus* sp. nov. and *B. adamparsonsi* sp. nov. in that head of the spermathecae is much smaller, the smallest of all described species. None

of the females of the new species described herein have even a similar combination to that of *B. spinipes*, i.e., the relatively small head of the spermathecae and long overall shape, no spines on the ventral palpal femur of the female, and the epigyne that lacks a posterior medial U-shaped ridge.

FIGURE 17. *Battalus spinipes* Karsch, 1878, male, AM KS44293 (a–d), holotype female ZMB (e–g): a, habitus; b, venter; c, d, palpal cymbium and bulb, ventral view (c), dorsal view showing paracymbial spines (d); e, carapace, dorsal view; f, sternum, maxillae, labium and chelicerae, ventral view; g, epigyne, internal.

Description Male AM KS44293

Carapace 2.98 long, 1.07 wide. Abdomen 2.96 long, 1.51 wide. Total length 6.0.

Colour: carapace orange brown with dark scallops in submargins; abdomen dorsally with orange brown scute for 0.8 of length, and dark margins with large pallid area anteriorly and 4 fused chevrons posteriorly. Legs: femora fawn, save for IV brown in distal third. Sternum, coxae and femora rugose. Spines: like female, but 3 strong dorsally on femora I–IV; no ventral spines on palpal femur. Full ventral scute. Palp: bulb pear-shaped with distal cone tapering gradually, embolus base a diagonal ridge, tip simple, reflexed, tapering tube. Paracymbial spine low, broad.

Holotype female ZMB 2146

Carapace 4.81 long, 3.31 wide. Abdomen partially shrivelled, not measured. Colour: carapace dark brown; distal half of femora dark, otherwise legs red brown; abdomen dorsally with two large pairs of pallid spots anteriorly and one medial posterior spot. Chelicerae: distinct fang shield on lobe with slightly enlarged broken setae; large, diagonal fangs. Legs: small RCH. Distodorsal palpal tarsus with uniform pile of long dense hair not in

ranks. Coxae I and II smooth ventrally. Spines: no strong spines on palpal femur ventrally. I and II: fe pv1 (long strong) p1d3, pa 0, ti p2 v2.2.2.2. (all long strong), me p1 v2.2. III: fe p1d3r1; pa0; ti p1d1r2v2.2.1; me p3r3v2.2.4. IV: fe p1d3r1; pa 0; ti p1r1v2.2.1; me p3r3v2.2.4. Palp: fe p1d2; pa p1d1; ti p2d1; ta p1d2. Scopula: weak, distal on metatarsi, more distinct on tarsi. Claws with 3 long teeth. Abdomen with small pear-shaped scute for dorsal fourth. Broad, low, curved ridge over tracheal spiracle. Epigyne: paragenital brackets present; two large longitudinally lunate widely separated biconcave ridges; shallow, indistinct U-shaped depression posteriorly. Internally, large wide funnel leads to head of spermathecae, ducts folding back (both across and down) on themselves strongly to large basal lobe.

Distribution. Known only from the McIlwraith Range, near Coen, Cape York, Queensland, which is consistent with the type locality, "northern Australia". Daemel's other collections are from Cape York. The absence of other new material reflects reduced sampling of Cape York, which is untrafficable because of flooding in the most arachnologically active "Wet Season" from about November to April.

Remarks. Simon (1897a: 168) suggested, solely from Karsch's "[brief description]", that *Battalus* was a synonym of *Supunna*.

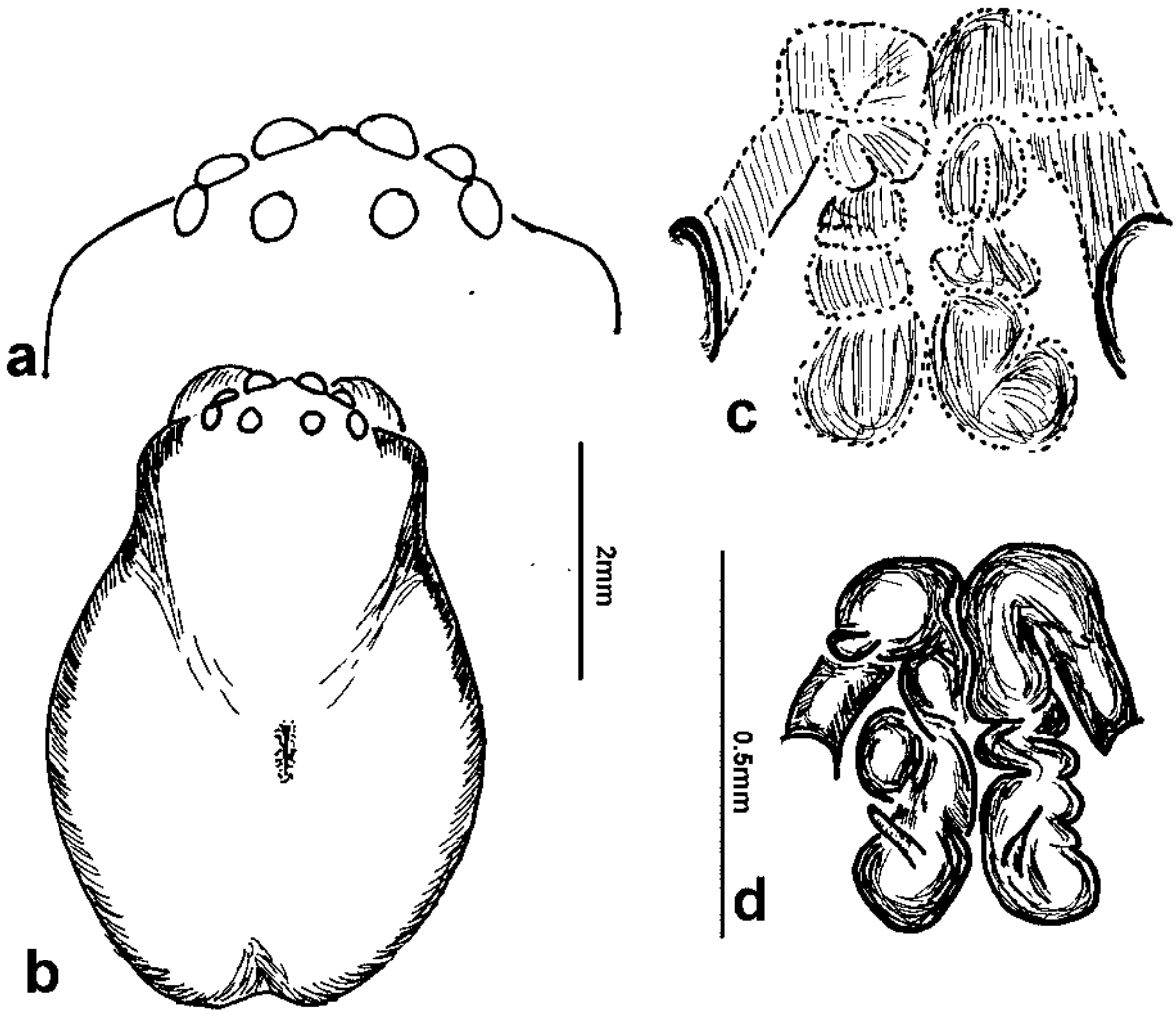


FIGURE 18. *Battalus spinipes* Karsch, 1878, holotype female ZMB2146: a, eyes, dorsal view; b, carapace, dorsal view; c, d, epigyne, external (c), and internal (d).

***Battalus adamparsonsi* sp. nov.**
(Figs 4c, 19a–c, 20a–f, 21a–e, 135. Map 5)

Material. New South Wales: holotype ♂, Bulga State Forest, 31°37.10'S, 152°07.7'E, M. Gray, G. Cassis, AM

KS40682. Paratypes: **Queensland**: 1♂, Bellthorpe-Jimna Rd, 26°43'S, 152°32'E, open forest, intercept flight trap, 20 Jan–9 Mar 1997, G. Monteith, QM S38046; 2♂, Binna Burra, Lamington NP, 28°12'S, 153°11'E, 8–13 Mar 1997, R. Raven, QM S80481, QM S80511; 1♂, Buhot Ck, Burbank (BCC1), 27°35'S, 153°10'E, riparian, pyrethrum knockdown, 18 Feb 2004, QMP, QM S79639; 1♂, Dalveen, 28°29'S, 151°58'E, Nov/Dec 2003, J. Warden, QM S79479. Lake Broadwater via Dalby, 27°21'S, 151°06'E, open eucalypt forest, pitfall, QMP & M. Bennie: 2♂ 1♀, QM S79284, QM S54283; 1♀ 5j, QM S50476; 1♂ 1♀, allotype, same data but Jan 2002, R. Raven, QM S65927; 1♀, 16 May–23 Nov 1985, QM S50477; 1♂, Swan Ck, Main R, 28°08'S, 152°20'E, 12 Apr 1993, G. Monteith, QM S52246; 1♀, Toogoolawah, 27°05'S, 152°23'E, Jul 2001, Arthur Stafford, QM S84193. **Victoria:** 1♀, Ferntree Gully, Dandenongs, 37°53'S, 145°18'E, Jan 1937, H. Womersley, SAMA NN5550.

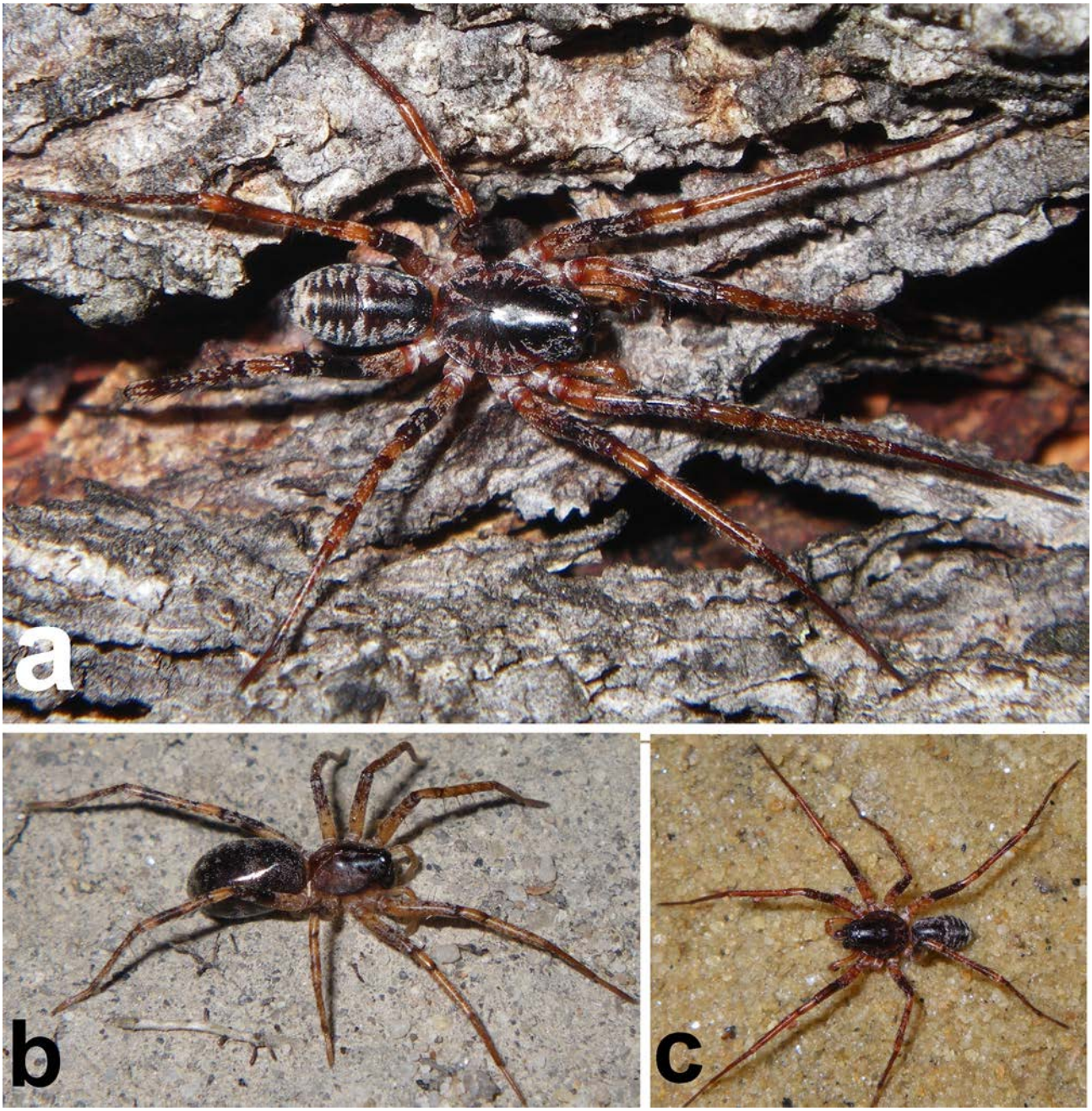


FIGURE 19. *Battalus adamparsonsi* sp. nov., male (a, c), female (b): habitus showing variation in pattern on live animals (Photos: A. Parsons).

Diagnosis. Males differ from those of *B. wallum* sp. nov. in predistal keel on the embolus and short embolic tip (Fig. 21c); females differ from those of *B. byrneae* sp. nov. in the relative sizes of the lobes in the head of the spermathecae (Fig. 21b).

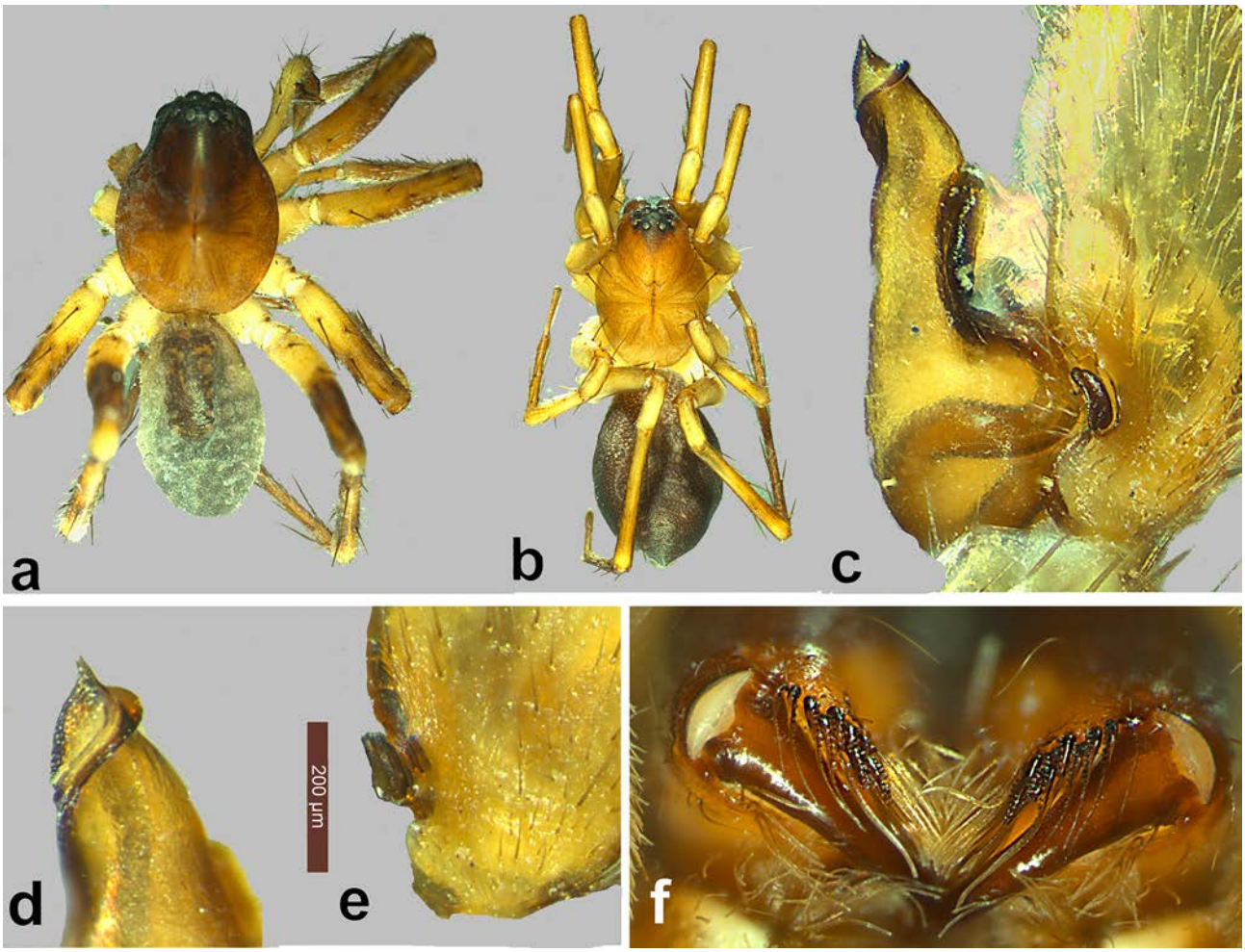


FIGURE 20. *Battalus adamparsonsi* sp. nov., holotype male, AM KS40682; allotype female, QM S6597: a, b, habitus, male (a), female (b); c, d, palpal tibia, bulb and cymbium, retrolateral view (c), ventral view (d); e, paracymbial spine, dorsal view; f, female chelicerae, ventral view.

Etymology. In honour of Mr Adam Parsons, accomplished photographer and naturalist from Hill Top, New South Wales.

Description Holotype male AM KS40682

Carapace 3.52 long, 2.56 wide. Abdomen 3.28 long, 1.76 wide. Total length 6.80.

Colour: carapace yellow brown with darker brown flecking; legs yellowish with slightly darker patches in no evident pattern; abdomen dorsally for 1/2 length with narrow dark brown scute edged in white, posteriorly brown with 3–4 pallid chevrons; ventrally, coxae, sternum and abdomen pallid. Carapace: with light cover of pointed pustules on interstrial ridges; fovea long, sloping very gently back to margin. Eyes: AME much the largest. Chelicerae: low triangular mound at base of fang; fang long, groove oblique; dentition 2R, 3P. Sternum: a broad shield with intercoxal triangles at I/II; lightly setose. Legs: light coloured feathery hairs on femora; lightly setose. Spines: I: fe pv1p2d3r1; ti p2v2.2.2.2; me p2v2.2. II: fe pv1p2d3r2; ti p2v2.2.2.2; me p2v2.2. III: fe p3d3r3; ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r1; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2. Palp: tibia with proventral hollow; cymbium small, symmetrical, retrobasally with flattened ridge; paracymbial spine short, flat, marginal, triangular; bulb tapers simply and smoothly to narrow sharp pre-embolic keel, embolus short, triangular, rugose. Abdomen: dorsal scute smooth, narrow ovoid for anterior half; ventral scute pallid, begins *ca.* 1/8 from genital scute, diverging laterally, with diffuse separation from broad ridge of large subquadrate tracheal scute.

Allotype ♀ QM S65927. As for ♂ but:

Carapace 3.50 long, 2.32 wide. Abdomen 4.01 long, 2.69 wide. Total length 7.4.

Colour: carapace brownish yellow with darker reticulations; eye region darker; chelicerae red brown; legs orange brown with brown smudges on ventral femora and on legs II and IV; abdomen brown with triangular scute on anterior face, with very fine chevrons posteriorly; venter brown, no ventral scute. Carapace glabrous. AME

largest. Cheliceral fang mound distinct with staggered row of 8 or 9 thick short, curved serrate spine-like setae. Fangs diagonal but not enlarged. Legs: RCH distinct. Femora III and IV unmodified distally. Coxae I and II smooth. Spines: long, strong on ventral tibiae and metatarsi I and II. I: fe pv1 (long) p2d3r1; pa 0; ti v2.2.2.2, last short; me v2.2. II as I but fe pv1 p2d2r1. III: p3d3r3; pa d1w; ti p2r2v2.2.2; me p2r2v2.2.2.4. IV: as III but, fe p2d3r1; pa 0. Palp: fe p1d2 + 3 strong setae ventrally; pa p1d1.1; ti p2; ta v2 probasal. Tracheal spiracle with semicircular scute and spiracle on apex of curve. Epigyne: an auricular-shaped ridge inner and distal of each copulatory opening separated by 2–3 times their length; internally, head large, folded with distinct thumb-like accessory lobe.

Distribution and habitat. Known from Ferntree Gully, in the Dandenongs, Victoria, Bulga State Forest, New South Wales to coastal south-eastern Queensland. Habitats of these spiders are diverse, ranging from small vine thickets (rarely) to open forest and tall heath.

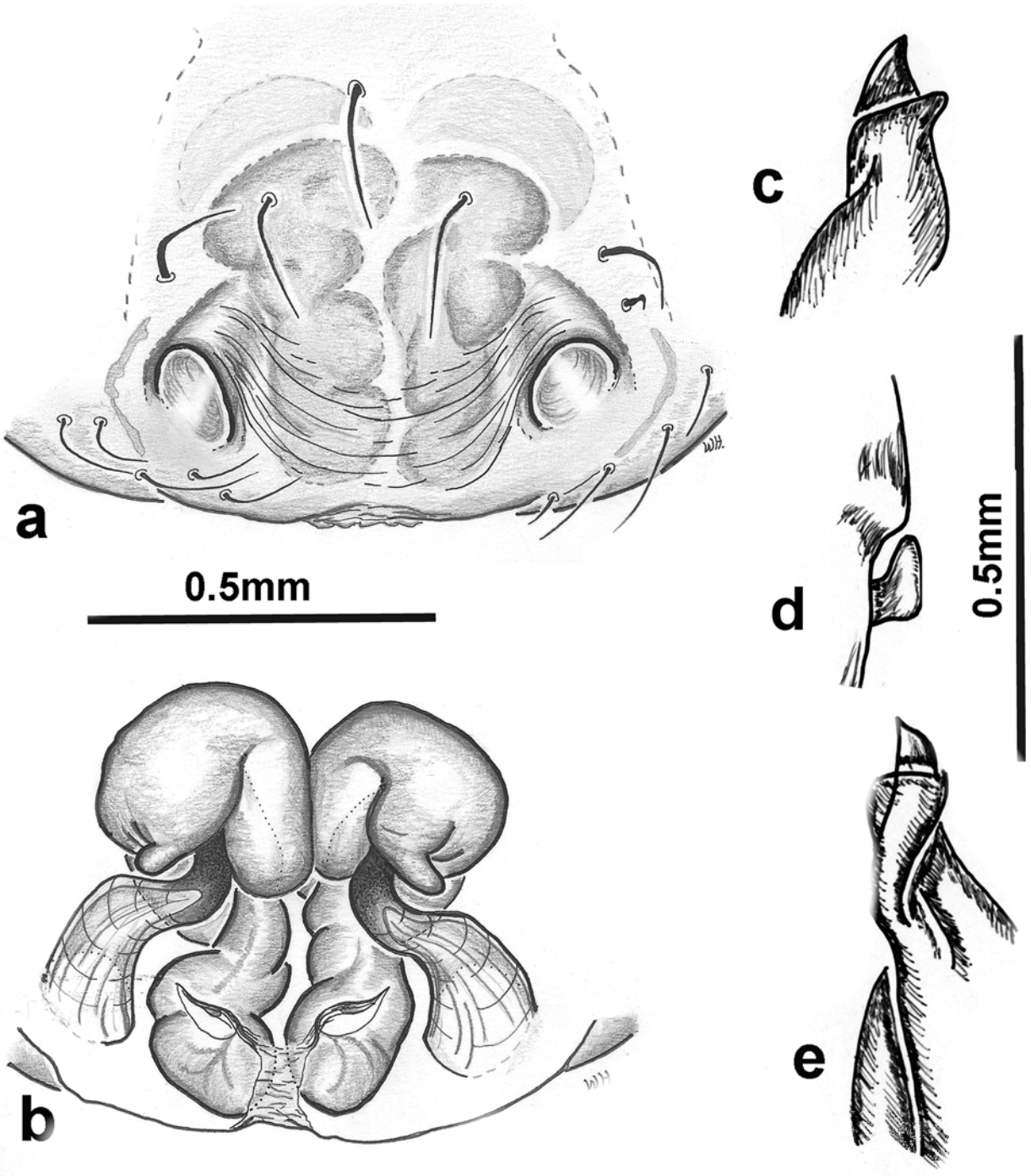


FIGURE 21. *Battalus adamparsonsi* sp. nov., holotype male, AM KS40682; allotype female: a, b, epigyne; a, external; b, internal; c, e, embolus tip, ventral (c) and retrolateral (e) views; d, paracymbial spine, ventral view.

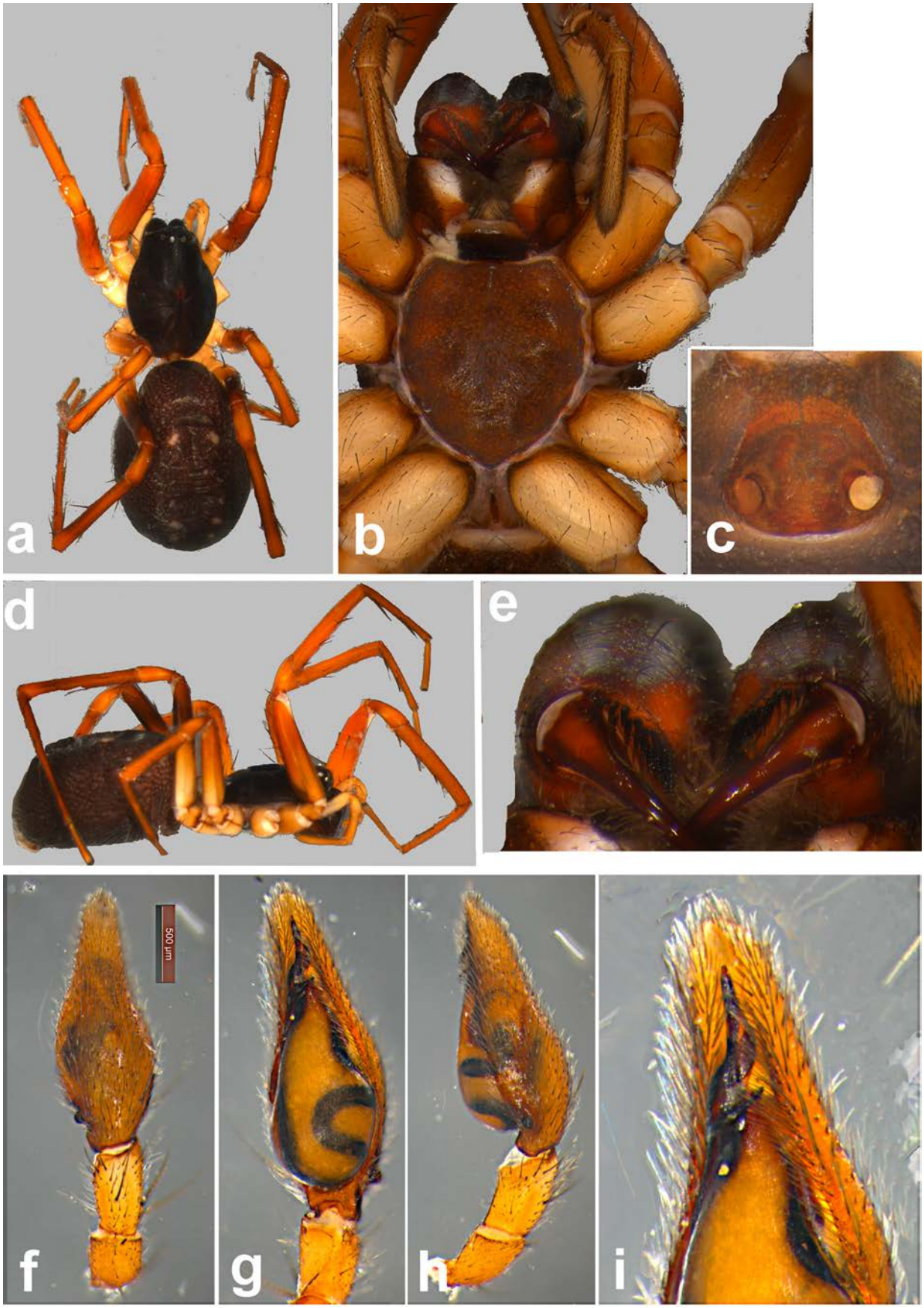


FIGURE 22. *Battalus byrneae* sp. nov., allotype female TMAG J4570 (a–e), holotype male TMAG J4149 (f–i): a, d, habitus female dorsal view (a), lateral view (d); e, epigyne, ventral view; f–i, male palpal tibia, bulb and cymbium, showing paracymbial spine, dorsal view (f), ventral view (g); retrolateral view (h), embolus tip, ventral view (i).

***Battalus byrneae* sp. nov.**
(Figs 5a, 22a–i, 23a–e. Map 6)

Material. **Tasmania**: holotype ♂, Flat Rock (Chauncey Vale), 42.60415°S, 147.27390°E, moth light trap at night, 20 March 2010, C. Byrne, R. Raven, TMAG J4149. Paratypes: **Tasmania**: (allotype) ♀, taken with holotype, TMAG J4570; 1♂ 1♀, Forth Falls, 41°23'S, 146°13'E, 28 Dec 1926, V.V. Hickman, AM KS28954; 1♀, Queens Domain, Hobart, 42°52'S, 147°19'E, 2 Dec 1963, V.V. Hickman, in rolled bark on ground, AM KS29040; 3♂, same data but October 1968, AM KS29014; 1♀, Mt Wellington near Summit, 42°54'S, 147°14'E, 28 Nov 1963, V.V. Hickman, in nests under flat stones one with eggs in nest, AM KS29127; 1♂, Mt Wellington, 42°54'S, 147°14'E, 10 Dec 1963, J.L. Hickman, AM KS29128; 3♀, Trevallyn, in curled bark on ground, 23 May 1931, V.V. Hickman, AM KS29007; 2♀, Bicheno Lookout, 41°52'S, 148°18'E, 60m, dry eucalypt bark on granite in rolled bark on ground, L.J. Boutin, May 1996, TMAG J4531; female, same data but Jan 1998, TMAG J3580; 1♀, Freycinet National Park, 42°09'S, 148°18'E, dry eucalypt bark on granite, L.J. Boutin, 27 May 1996, TMAG J4530; 4♂, Knocklofty Reserve, 42°53'S, 147°18'E, L.J. Boutin, 29 Nov 1998, TMAG J3544.

Diagnosis. Differs from *B. diadens* sp. nov. by the entirely black carapace and abdomen with larger white spot over the spinnerets (Fig. 22a); females differ in the smaller, more widely spaced copulatory fossae (Fig. 23a) and males in the shorter embolus tip (Fig. 23c).

Etymology. The specific epithet is honour of Dr Catherine Byrne, moth taxonomist and Senior Curator, Tasmanian Museum and Art Gallery, who masterfully organised the first Bush Blitz expedition to Tasmania, on which the types were collected and, at whose moth Bucket (night) traps, the spiders were taken.

Description Holotype male TMAG J4149

Carapace 4.11 long, 2.74 wide. Abdomen 3.71 long, 2.36 wide. Total length 7.8.

Colour: dark brown with four fine lines of white hairs radiating from fovea along caput margin and posterior striae. Abdomen dark brown with 4–5 pairs of spots of white hair, anterior pair largest, with three distinct but smaller pairs behind that. Tongue-like abdominal scute for 0.4 of length dorsally; venter brown with pair of lines of pallid spots laterally; no ventral scute. Legs all orange brown. Carapace and chelicerae glabrous. Chelicerae with 2R, 2P with long diagonal fangs. Sternum and coxae glabrous, smooth. RCH not evident. Femur IV distally unmodified. Spines: prolateral spines on tibiae I and II, and metatarsi II. Basal and distal spines on tibiae I and II small. Ventral palpal femur with two bristles; two spines basally on cymbium. I: fe pv1p2d3; pa 0; ti p1v2.2.2.2; me v2.2. II: fe pv1p2d3r1; pa 0; ti p2v2.2.2.2; me p1v2.2. III: fe p3d3r3; pa (d1.1); ti p2r2v2.2.2; me p2r2v2.2.4. IV: as III but fe p1d3r1; pa0. Palp: p1d2; pa (p1d1.1); ti p2r2; cymbium pv2. Abdomen: tracheal spiracle a broad curved ridge in broad plate. Palp: bulb with small pre-distal keel twisting to small straight conical tip; paracymbial spine small, rounded; basal cymbium wide ventrally.

Allotype Female TMAG J4570. As male but:

Carapace 3.36 long, 2.24 wide. Abdomen 4.96 long, 3.04 wide. Total length 8.5.

Colour: carapace black; abdomen dark brown dorsally; dorsal scute small, triangular, on anterior face; distal femur IV brown, otherwise legs yellow. Chelicerae: fang shield strong with 10 long curved thick serrate setae. Spines: prolaterally on tibiae and metatarsi II; patellae I–IV with long erect bristle distally and basally. I: fe pv1p2d3; pa 0; ti v2.2.2.(2); me v2.2. II: fe pv2p2d3r1; pa 0; ti p2v2.2.2.2; me p1v2.2. III: fe p3d3r3; pa 0; rest like male. IV: fep2d3r1; rest like male but ti also with or without dorsal spine. Palp: fe p1d2(v4 long and 1 short bristles); pa d1.1; ti p1d2; ta p2(basal) r1. Tracheal scute as in male. Epigyne: copulatory openings ovoid, separated by slightly more than twice their length; internally, head large, unequally folded with distinct accessory lobe, posterior ducts short.

Distribution and Habitat. Known from eucalypt forest from Trevallyn near Launceston in northern Tasmanian to southern and eastern Tasmania, near Chaunceyvale, around Mount Wellington and the Queens Domain, Hobart. Significantly, some material from around Hobart was taken in 1963, not long before Black Tuesday (February 7, 1967) in which, during 5 hours, fires ravaged 264,000 hectares, including the Queens Domain; 900 people were injured, 60 people died and thousands were left homeless. However, V.V. Hickman took material (AM KS29014) in October 1968, so this species was able to recover.

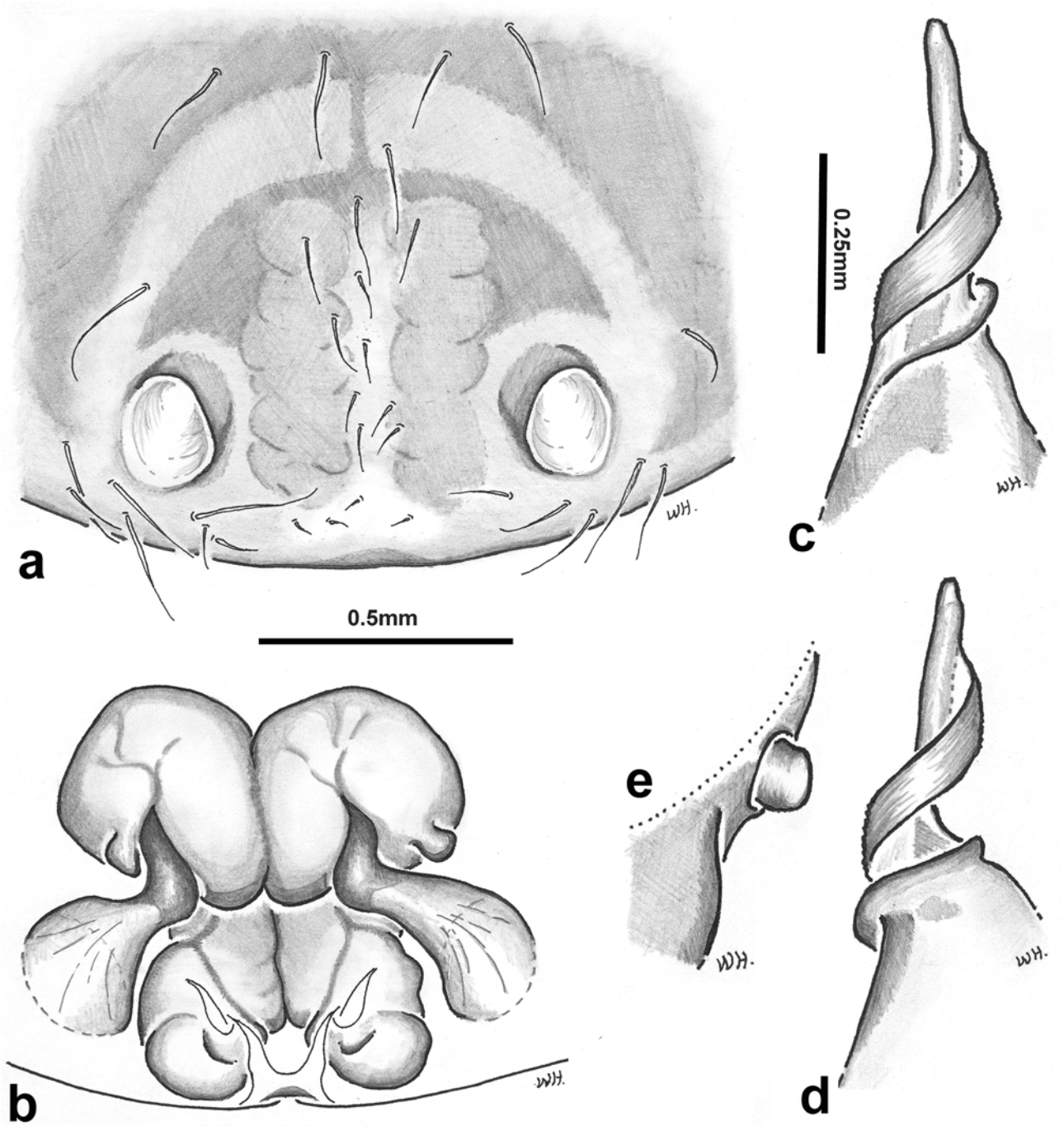


FIGURE 23. *Battalus byrneae* sp. nov., TMAG J4570; a, b, allotype, epigyne, external (a), internal (b); c, d, e, holotype male: same scale, c, d, embolus tip, ventral view (c), retrolateral view (d); e, paracymbial spine, ventral view.

***Battalus diadens* sp. nov.**
(Figs 24a–g, 25a–d. Map 7)

Material. Victoria: holotype ♂, McLellands Rd, 0.1 km N Rathbones Road, 36°09'S, 145°13'E, 17–22 Jan 1994, G. Milledge, MV K4527. Paratypes: **Victoria**: 1♂, Murray Valley Hwy, Deep Creek Crossing, 36°08'S, 145°11'E, 17–22 Jan 1994, G. Milledge, MV K4523; 3♀, State Forest, 3.5 km NE Yambuna, 36°06'S, 145°02'E, 18–23 Jul 1994, G. Milledge & P. Lillywhite, MV K4395; allotype ♀, Murray Valley Highway, 0.3 km NNW Walshs Bridge Road, 36°06'S, 145°11'E, 18–23 Jul 1994, G. Milledge & P. Lillywhite, MV K4437; 1♂, Cohuna, CVIC952. **South Australia**: 1♂, Chowilla (Survey NCSSA), Slaney Creek on lagoon bank, 12–13 Nov 1988, S. Lewer, SAMA NN687. **Queensland**: 1♂, Cherrabah, 28°25'S, 152°10'E, 24–28 Sep 2002, B. Baehr, QM S59614.

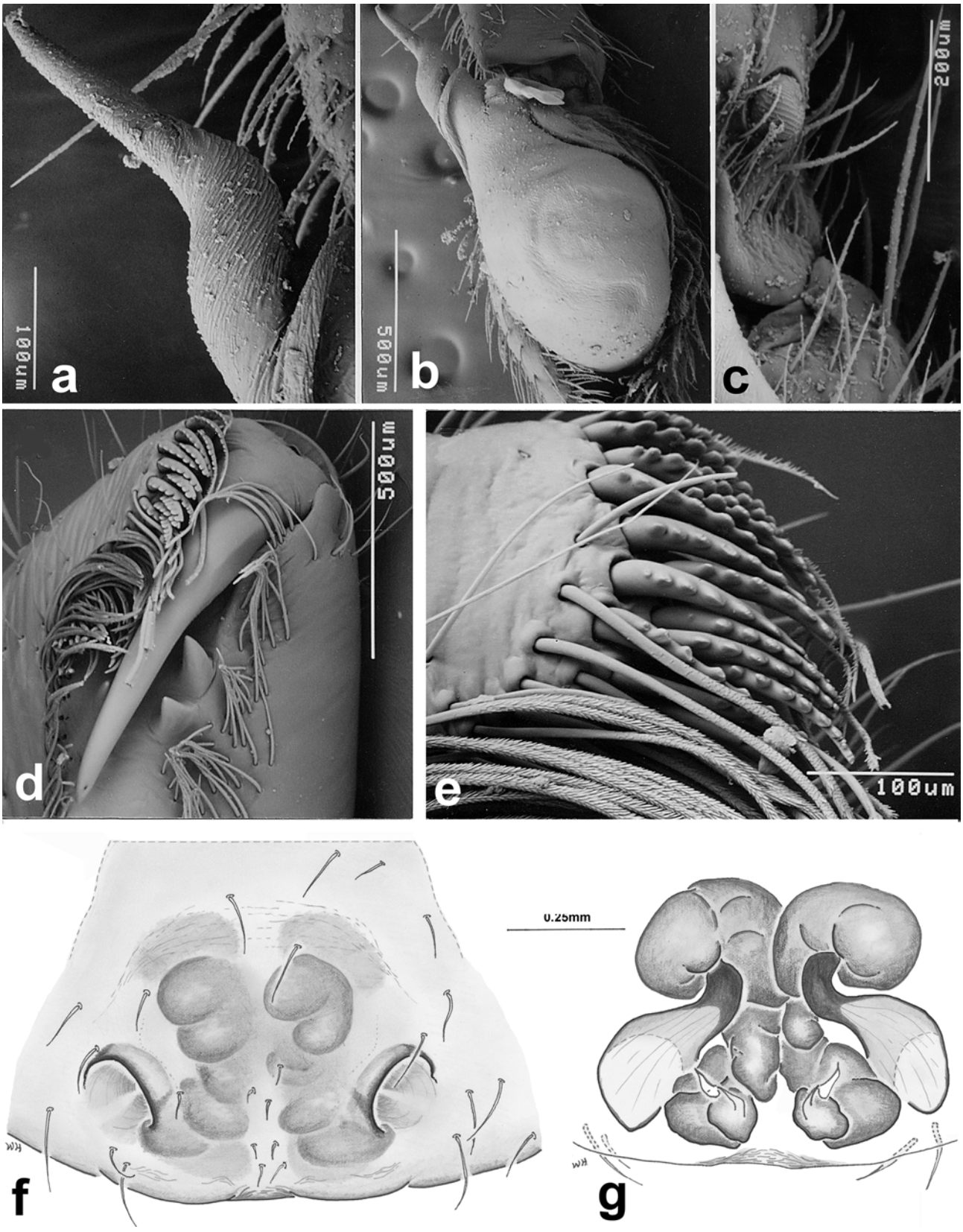


FIGURE 24. *Battalus diadens* sp.nov., scanning electron micrographs, paratype male MVK4523, a–c. a, b, palpal bulb, rotated, ventral view; b, embolus tip; c, paracymbial spine, retrobasally, lateral view. Female, MVK4395, d–e, chelicera and fang setae; ventral (d) and prolateral (e) views. Female allotype, MV K4437; epigyne, external (f), and internal (g).

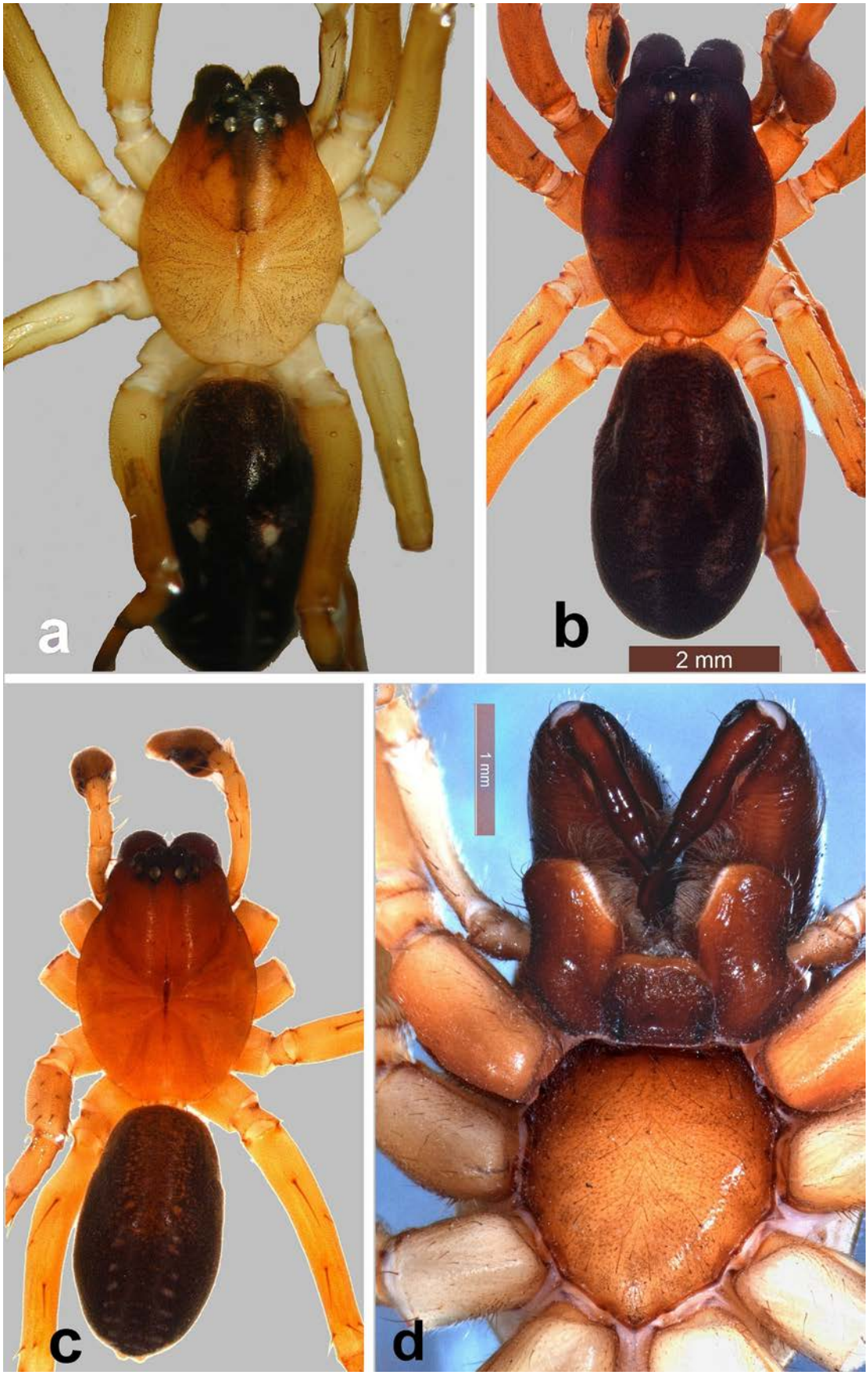


FIGURE 25. *Battalus diadens* sp. nov., males. a–c, habitus, males showing colour variation in carapace and abdomen: a, Cherrabah, south Queensland; b, Cohuna, Victoria; c, Tenterfield, northern New South Wales. Sternum, maxillae, labium and large fangs, d, SAMA NN687.

Diagnosis. Males differ from those of *B. wallum* sp. nov. by the apically expanded paracymbial spine (Fig. 24c) and the massive fangs (Fig. 25d) that constrict at midpoint. Females are unusual in the combination of relatively simple spermathecae (Fig. 24g) and no spines on ventral palpal femur.

Etymology. The species epithet comes from the large diagonal fangs.

Description holotype male MV K4527

Carapace 4.56 long, 3.28 wide. Abdomen 4.96 wide, 2.96 wide. Total length 9.7.

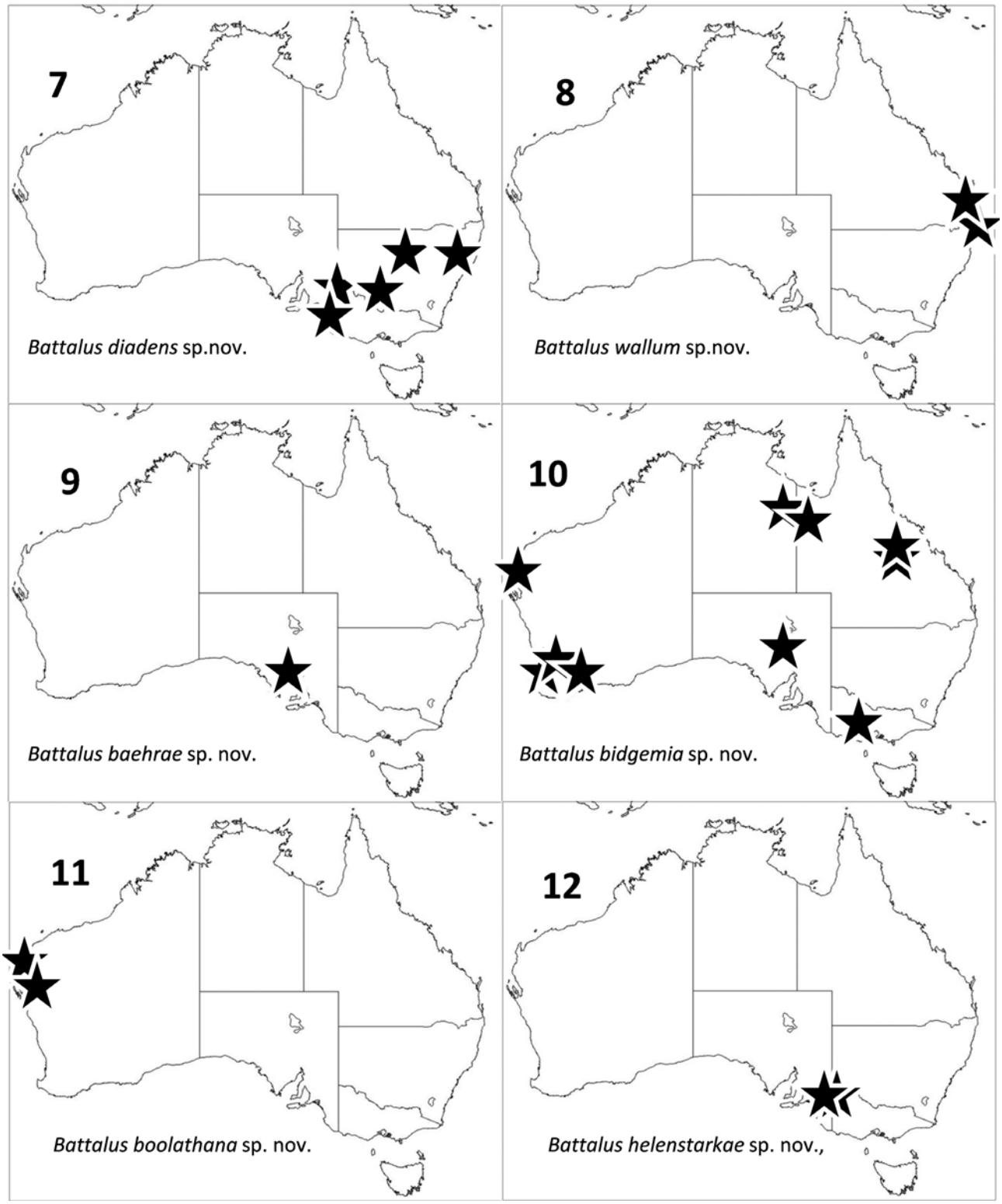
Colour: carapace dark red brown, strial edges darker, grooves lighter, generally red brown, becoming less dark behind fovea; abdomen pigmentation abnormal, cuticle separated, in paratypes entirely dark brown dorsally and laterally with fine light spots of white hair tufts in two bands under scute; ventral abdomen centrally a pallid quadrangle. Chelicerae and fangs, maxillae and labium dark red brown; sternum sepia; coxae and legs yellow brown. Legs not banded but dark flecks on darker tibiae and metatarsi III. Carapace: with fine bristles but no hair. Broad with distinct anterior constriction, posterior margin deeply indented; fovea short, deep. Eyes: AME clearly the largest, within diameter of each other and above carapace margin, group about twice as wide as long. Chelicerae: large, rotated so fangs diagonal; anterior process indistinct, hair horizontal, slender; fangs long, diagonal with pre-medial constriction, tips near mouth; furrow also long, almost paraxial; promargin with one large and one smaller tooth; retromargin with 2 similar medium-sized teeth, all teeth set at *ca*. half furrow length; low cheliceral lobe with horizontal normal setae. Maxillae: short with short wide basal central ridge; ectal margins distinctly concave; ental edge sloping; serrula long. Labium: clearly wider than long. Sternum: broad, shield-shaped with intercoxal triangles between I and II. Legs: lightly hirsute; coxae with distinct basal spur retrobasally on II–IV; trochanters with shallow notches—*ca.* 3–4 times wider than deep. Spines: On tibiae I and II paired ventral spines weak, short, spines one length between each pair. I: fe pv1 long p2d3r1; ti v2.2.2.2; me v2.2. II: fe pv1p2d3r1; ti p2v2.2.2.2; me p1v2.2. III: fe p3d3r3; ti p2d1r2v2.2.2; me p3r4v2.2.2. IV: fe p2d3r1; pa 0 apical weak ti p2d1r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2; pa d2.1; ti p2d1; cymbium 2 probasal. Thick short setae in irregular ventrolateral bands on tarsi III and IV. Scopula: short narrow ventral flange on tarsi I, II and divided in distal third of metatarsi I and II. Claws and tufts: similar size and length on all legs, tufts project forward and up to claws, claws on I and II not enclosed by tuft (even when retracted). Claw tufts dense, as high as claws of similar size on I and IV, each with *ca*. 5 small teeth. Palp: cymbium with distinct ovoid retrobasal paracymbial spine and cluster of short hairs and small spines apically around distinct groove to tip; basally with 2 spines; bulb with scooped pre-haematodochal plate; parategular lobe small, tegulum with double-looped sperm duct and twisted short embolus with low pre-distal keel. Tibia with prolateral concavity. Abdomen: scutes: dorsal, ovoid with irregular margin, to midlength and not extending to flank; ventral, not enclosing pedicel, lightly sclerotised over genital region and booklungs, no post-epigastric sclerite; tracheal, slightly raised ridge wide, deep, darkly sclerotised, with less sclerotised triangular shield up to and behind it, well separated from spinnerets in holotype but on distinct elevated ridge in paratype. Spinnerets: ALS wider than PLS but of similar length.

Allotype Female MV K4437. As for ♂ except:

Carapace 3.84 long, 2.72 wide. Abdomen 5.04 long, 3.12 wide. Total length 9.0.

Colour: carapace with dark caput and paler thoracic region; abdomen dark brown dorsally, with white hair tufts more distinct: two larger ovoid medially, then three pairs of tufts: anterior tiny, posterior two larger, then three transverse bands of short white hair, and in front of spinnerets on each side a large white area. Carapace & eyes: like ♂ with ovoid PME. Chelicerae: stout vertical, with pronounced fang shield with 15–20 large thick curved black vertical setae. Fang long but shorter than in ♂; concavity around fang long and teeth (as for ♂) just proximal to it. Maxillae and labium as ♂. Sternum: weak but distinct pre-coxal triangular extensions between III and IV. Legs: trochanters with very shallow rounded notches. Spines: three basal pairs on tibia I and II, much longer than in ♂, overlapping; fourth pair shorter, weak. I: fe pv1p2d2; ti v2.2.2.2; me v2.2. II: fe (all short weak) pv1d3r1; ti p2 short v2.2.2.2; me p1v2.2. III: fe (all short weak) p3d3r3; ti p2d1r2v2.2.1; me p3r3v2.2.2 + 2. IV: fe p2d3r1; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d1 apical ti p2 (basal) d1; ta p2 basal v1. Palp: tarsus long, distinctly subdistally incrassate; slender bare claw; cluster of short thick setae and hairs predistally on dorsal mound. Abdomen: small ovoid scute dorsally just over anterior shoulder *ca*. for 1/8th length, genital scute with well defined ventral edge. Tracheal ridge distally elevated. Distinct post-epigastric sclerites oval. Epigyne: with two relatively large apertures basally. Spermathecae with longitudinal medial duct, moderately large distal lobe and simple single lateral lobe.

Distribution and Habitat. Known from mallee and north central Victoria near the New South Wales border and adjacent areas of South Australia and through to southern Queensland.



MAPS 7–12. Records of Australian species of *Battalus* Karsch, 1878.

***Battalus wallum* sp. nov.**
(Figs 26a–g, 27g–i. Map 8)

Material. **Queensland**: holotype ♂, Great Sandy NP, Cooloola Section, 26°12'S, 153°03'E, heathland, malaise trap, 1–5 Oct 1996, C. Lambkin, QM S32638. Paratypes: **Queensland**: 1♀, Bulburin SF, 24°30'S, 151°35'E,

beating, 17–24 Mar 1975, V. Davies R. Kohout, QM S29416; 1♂ 1♀, Cooran Tableland, BS68, 26°15'S, 152°49'E, rainforest, flight intercept trap, 25 Sep 2001–16 Jan 2002, G. Monteith, QM S60626; 1♀, Enoggera Reservoir (site 3), 27°27'S, 152°55'E, rainforest, malaise trap, 15 Mar–18 May 2000, C. Burwell, S. Evans, QM S39615; 1♀, Fraser Island, Orchid Beach, Eliza Avenue (F02), 24°58'S, 153°19'E, heathland, pitfall, 20 Aug–17 Dec 1997, R. Raven, P. Fishburn, P. Lawless, QM S43437; 1♀, Gayndah, Burnett River, 25°27'S 151°36'E, grassland, night collection, beating, 21–23 Nov 1998, R. Raven, QM S42765; 1♂, Gold Creek Reservoir, Brookfield, 27°30'S, 152°55'E, closed forest, 8 Apr 1981, V. Davies, R. Raven, QM S29517; 1♂, Laidley Ck, 27°31'S, 152°25'E, 27 Dec 1980, M. Grant, QM S29490; 1♀, McAfee's Lookout, 1 km SW, 27°26'S, 152°52'E, wet sclerophyll, pitfall, 18 Apr 1999–6 Feb 2000, G. Monteith, QM S56389. Mt Glorious (Hiller HS), 27°20'S 152°46'E, rainforest, *Argyrodendron actinophyllum* sampling, Y. Basset: 1♀, malaise trap, 4–11 Dec 1986, Y. Basset, QM S3947; 1♀, same locality, QM S5202; 1♀, malaise trap, 20 Mar & 13 May 1986, QM S4002; 1♀, omnidirectional flight trap, 1–8 May 1986, QM S3991; 1♀, malaise trap, 4–11 Dec 1986, QM S3987; 1♂, malaise trap, 22–29 Jan 1987, QM S3961; 1♂, omnidirectional flight trap, 6–13 Nov 1986, QM S3994; 1♂, malaise trap, 17–24 Apr 1986, QM S4003; 1♂, malaise trap, 29 May–5 Jun 1986, QM S4007; 1♂, omnidirectional flight trap, 26 Mar–2 Apr 1987, QM S4965; 1♂, malaise trap, 2–9 Apr 1987, QM S4983; 1♀, malaise trap, 3–10 Dec 1987, QM S5321; 1♀, malaise trap, 26 Mar–2 Apr 1987, QM S4977; 1♂, malaise trap, 11–18 Feb 1988, QM S5206. 1♀, Mt Glorious, (Plot 2), 27°20'S 152°46'E, 6 Dec 1982, J. Majer, QM S54291; 1♂, Mulgowie, Laidley Valley, 27°44'S, 152°22'E, 25 Mar 1981, M. Grant, QM S29501; 1♀ allotype, Proserpine, Lilypool Site, site XY18, 20°30'S, 148°33'E, closed forest, malaise trap, 15–22 Aug 2007, J. Stanisic, QM S79967; 1♀, same data but malaise trap, 6–14 Nov 2007, N. Power, J. Stanisic, C. Burwell, R. Raven, QM S85800; 1♀, Sunday Ck, Jimna Ra, 26°40'S, 152°34'E, rainforest, intercept flight trap, 20 Jan–9 Mar 1997, G. Monteith, QM S38062. **New South Wales**: 1♂, Gordon, 33°45'S, 151°10'E , 12 Aug 1982, C. Horseman, D. Jones, AM KS10479; 1♀, Lansdowne, 5km SE, rainforest, 31°47'S, 152°32'E, G. Williams, AM KS50248.

Diagnosis. Males differ from those of *B. diadens* sp. nov. in the curved coniform paracymbial spine (Fig. 26c). Males and females have at least two prolateral spines on tibiae II, if (not on I) and one dorsally on tibiae III and in females, the copulatory fossae are almost their length from epigastric furrow (Fig. 26f).

Etymology. A noun in apposition from one of the habitats (wallum or heath) in which the species is found.

Description holotype male QM S32638

Carapace 2.52 long, 2.00 wide. Abdomen 2.48 long, 1.64 wide. Total length 5.00.

Colour: carapace light brown with brown radial mottled interstrial bands; abdomen light brown, narrow bands of white lanceolate hairs posteriorly on abdomen scute dorsally. Chelicerae red brown. Legs: femora red brown, with basal and subapical (I) or subapical bands only II, III or apical IV; patellae, tibiae and metatarsi orange brown with darker bands basally and distally. Sternum red brown, coxae and genital area pallid. Eyes, chelicerae, maxillae and labium as for genus. Legs: almost glabrous; without feathery hairs. Spines: strong ventrally on tibiae and metatarsi I and II. I: fe pv1p2d3r1; ti p2v2.2.2; me v2.2. II: fe p3d3r1; ti p2v2.2.2; me p1v2.2. III: fe p3d3r1; ti p2r2v2.2.1; me p2r2v2.2.3. IV: fe p2d3; ti p1.2 v1.2.2; me p2r3v2.2.3. Palp: fe p1d2; pa p1d1.1; ti p2d1. Palp: tibia short with shallow groove ventrally; cymbium with off-centre groove in apical cone; light scopula dorsally on cymbial tip also pallid, with short thick setae; embolus arises from keeled base and twists back in gentle hook; paracymbial spine small, conical.

Allotype Female QM S79967

Carapace 2.51 long, 1.95 wide. Abdomen 2.54 long, 1.96 wide. Totally, 5.1.

Colour: carapace dark orange brown with slightly darker fine lines along striae; abdomen brown with small oval scute for anterior eighth, two large irregular white areas and four chevrons posteriorly; pedal femora dark brown with black subdistal bands; legs I and II darker than others. Carapace: cuticle slightly rugose. AME>PME=PLE>ALE. Sternum smooth. Chelicerae with five thick setae setae in line on fang shield and one anterior to them. Legs: femora III & IV unmodified; femora rugose. Coxae mid-ventrally with 1–2 slightly thicker erect setae. Spines: long strong on ventral tibiae and metatarsi I, II. I: fe pv1p2d3r1; pa 0; ti p1v2.2.2.2; me v2.2. II: as I but ti p2v.2.2.2.2. III: fe p3d3r3; pa 0; ti p2d1r2v2.2.2; me p2r2v2.2.2.4. IV: like III but p2d3r2. Palp: fe p1d2v3 strong bristles. Tracheal spiracle with trianguloid scute and spiracle on apex of posterior curve. Epigyne: a pair of outward facing crescentic fossae about their length from epigastric furrow and “joined” by V-shaped groove; internally, a number of basal folds and a large spermathecal head, with large pendulous lateral lobe, makes overall shape quite long.

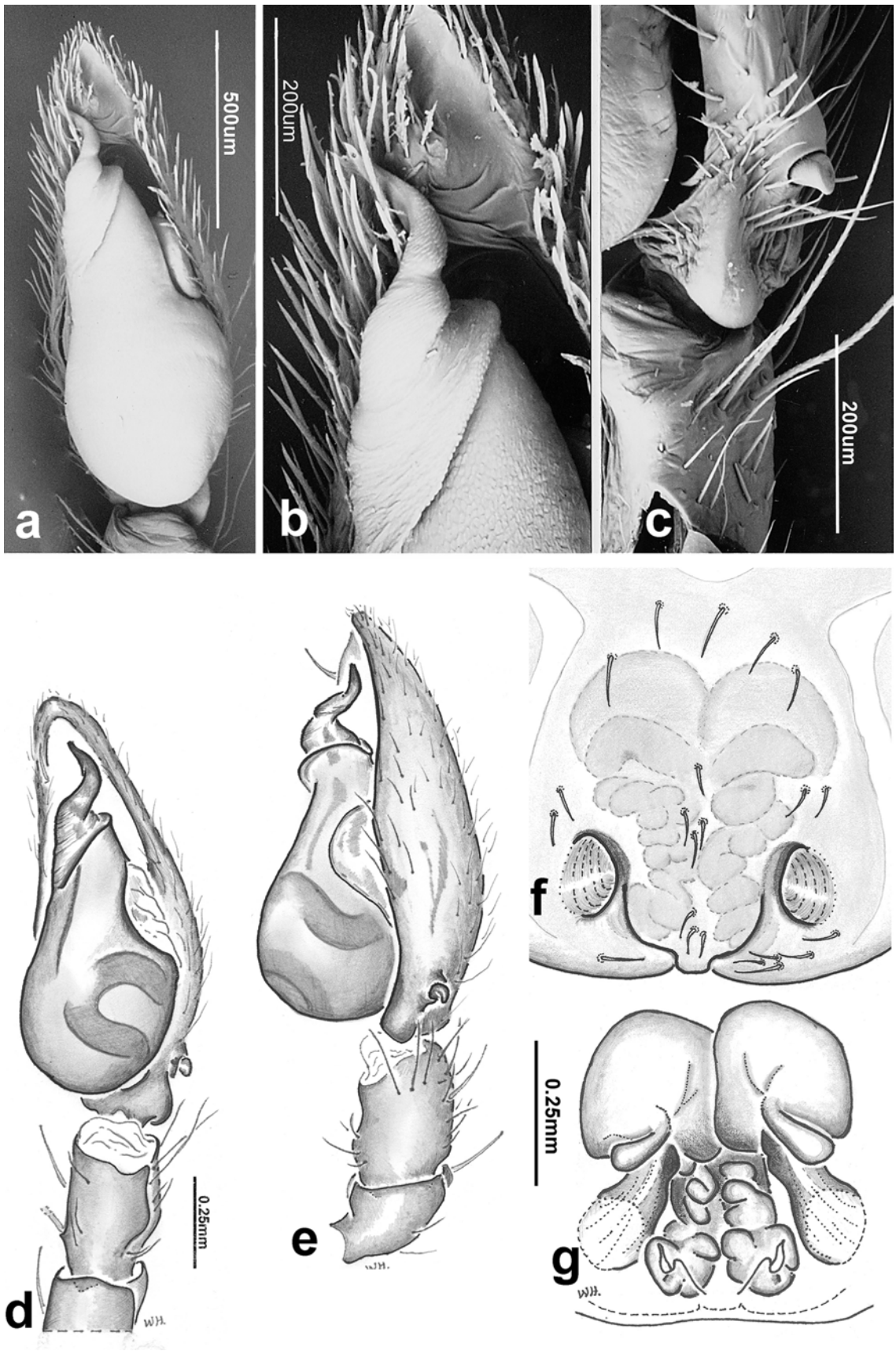


FIGURE 26. *Battalus wallum* sp. nov., scanning electron micrographs, paratype male, a–c: a, b, palpal bulb, rotated, ventral view; b, embolus tip; c, paracymbial spine, retrobasally, lateral view. d–e, holotype male palpal tibia, bulb and cymbium, showing paracymbial spine, ventral (d) and retrolateral (e) views. Female allotype, QM S79967, epigyne, f, g: external (f), and internal (g).

Distribution and Habitat. Known from Proserpine, north Queensland to northern New South Wales, in areas of rainforest , closed canopy forest, or open forest.

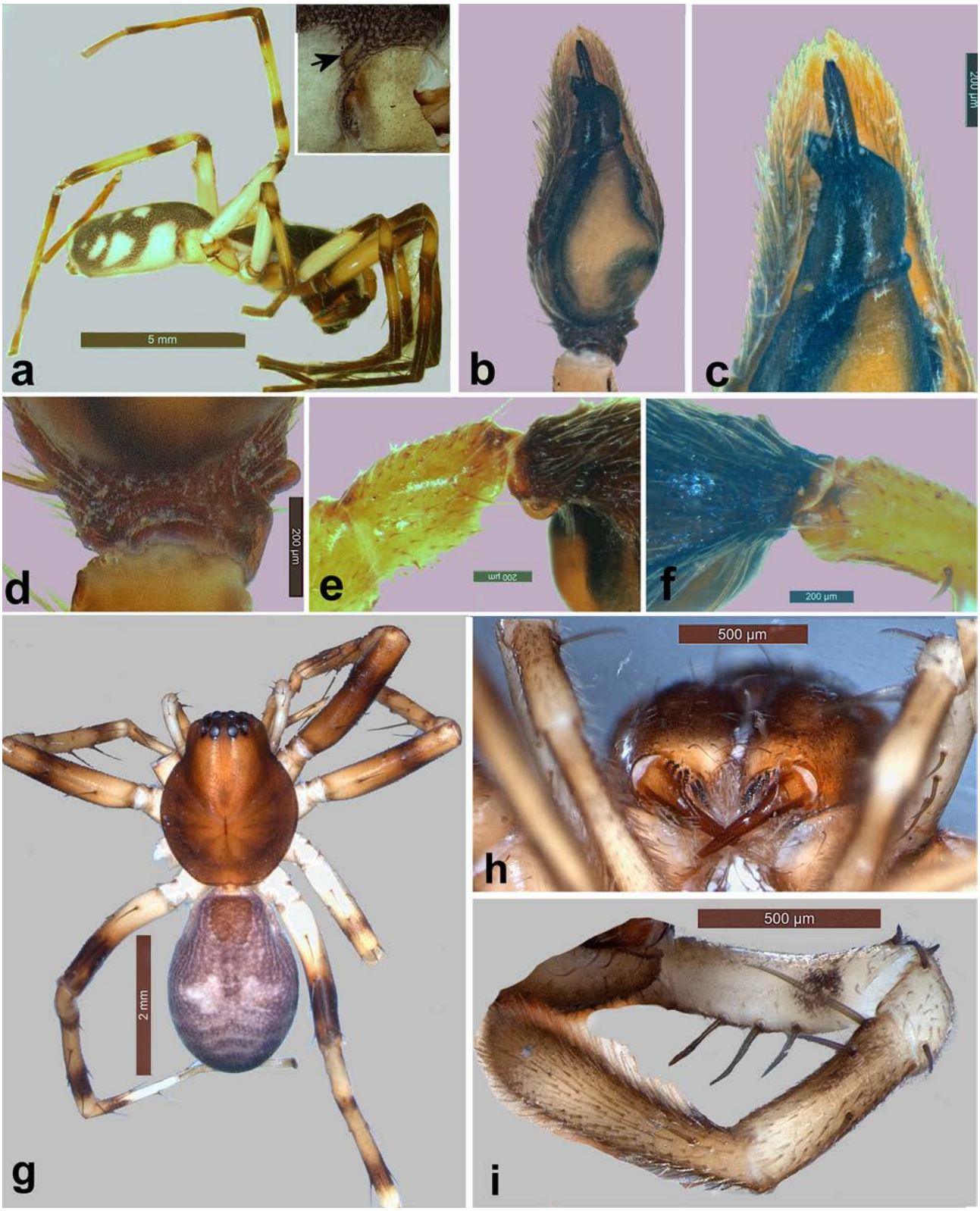


FIGURE 27. *Battalus* spp. nov. a–f, *B. baehrae* sp. nov., holotype male, SAMA NN8409: a, habitus, lateral view, inset showing suprapulmonary sigilla; b–f, palpal bulb and cymbial; b, c, ventral view (b), embolus tip (c); d, cymbial base showing paracymbial spine, ventral view; e, f, tibia and cymbium showing basal cymbial lobe, prolateral (e) and retrolateral (f) views, g–i, *B. wallum* sp. nov., female, habitus (g), cheliceral fang setae (h), ventral view; palp, retrolaleral (i) view, showing bulbous distal tarsi and three ventral spines on femora.

Battalus baehrae species group

Diagnosis. Males with bulb tip with narrow to wide predistal keel in combination with the digitiform embolus.

Species Included: *Battalus baehrae* sp. nov., *B. bidgemia* sp. nov., *B. helenstarkae* sp. nov., *B. boolathana* sp. nov., *B. microspinosus* sp. nov., *B. rugosus* sp. nov. and *B. zuytdorp* sp. nov.

Battalus baehrae sp. nov.

(Fig. 27a–f. Map 9)

Material. South Australia: holotype ♂, Pinkawillinie Conservation Park, 33°03'S, 135°50'E, 24 Nov 1995, D. Hirst, SAMA NN8409.

Diagnosis. Males differ from those of *B. zuytdorp* sp. nov. in a number of characters but most distinctive is the absence of the predistal keel (Fig. 27c) before the embolus tip, along with the presence of distal brown bands on the femora (Fig. 27a). Female unknown.

Etymology. The species is named in honour of Dr Barbara Baehr, accomplished arachnologist who has named more new species of spiders than there are endemic birds in Australia.

Description. Holotype male SAMA NN8409

Carapace 4.06 long, 2.81 wide. Abdomen 4.81 long, 2.19 wide. Total length 9.0.

Colour: carapace dark red brown; legs banded with pallid off-white zones between brown bands: femora I, II, IV brown for distal sixth (IV) to fifth ;patellae and tibiae brown basally and distally; tibiae brown for basal sixth and distal third; metatarsi and tarsi dark brown without bands; abdomen with narrow dorsal scute for anterior quarter; dorsally brown with three paired white spots (anterior largest to very small posterior); lateral abdomen brown with large white diagonal area followed by two smaller triangular areas laterally; ventrally a narrow brown tongue diffusely delimited by lateral pallid zones. Spines: patellae I–IV, 0; weak spines on tibiae I–III. I: fe pv1p1d3; ti p2v222; me p2v2.2. II, as I but fe p1d3. III: fe p1d3; ti d1r2v2.2; me p1r2v2.2dw4. IV: fe d3; ti d1r2v.2.2; me p1r2v2.2+dw4. Palp: fe p1d1; pa p1d1 distal; ti p2; cymbium, 0. Scopula on distal metatarsi I and II, and on tarsi I and II. Palp: bulb with distinct pre-distal keel, with straight tip; small paracymbial spine on low mound and low upcurved lobe; embolus distally with long shallow spiralling ridge, embolus tip a long blunt cylinder with short blunt lobe dorsally. Distinct scopula on cymbium; retrolateral basal cymbium with rectangular lobe.

Distribution. Known only from the Pinkawillinie Conservation Park, South Australia.

Battalus bidgemia sp. nov.

(Figs 28a, b, 31c. Map 10)

Material. Western Australia: holotype ♂, Bidgemia Station (GJ4), Gascoyne Junction, 25°05'17.4"S, 115°22'48.0"E, 17 Aug–5 Oct 1994, wet pits, A. Sampey *et al*., WAM 98/1649. Paratypes: **Western Australia**: 1♂, same data but 25°07'08.1"S, 115°25'33.1"E, (GJ3), 6 Jun–20 Aug 1995, wet pits, N. Hall, WAM 98/1650; 1♂, Meedo Stn (MD4), 25°40'49.1"S, 114°37'19.8"E, 9–14 Oct 1994, dry pits, P. West *et al*., WAM 98/1651; 1♂, Kennedy Ra NP, 24°34'14.3"S, 114°57'11.9"E, 3–8 Oct 1994, dry pits, M.S. Harvey *et al*., WAM 98/1652. All from WAM/CALM Carnarvon Survey. 1♂, D'Entrecasteaux, The Colonels, under bark, 4 Dec 1995, C. Deeleman, CLD collection; 1♂, Jarrahdale, K. Brennan, WAM T74049; 1♂, "Sieda", Fitz. Loc. 41, Grasspatch, 33°13'56"S, 121°46'00"E, 7 Apr 1997, A. Longbottom, WAM T74050. **Queensland**: 1♂, Camooweal, NE at 1st floodway on Gregory Downs-Camooweal, 19°47'S, 138°12'E, open forest, pitfall, 30 Jun–23 Sep 2006, R. Raven, B. Baehr, A. Amey, QM S75823; 1♂, Drummond Range, summit, 23°32'S, 147°17'E, open forest, flight intercept trap, 18 Dec 2000–27 Mar 2001, D. Cook, G. Monteith, QM S56931; 1♂, Lords Table plateau, site 2, 22°39'S, 148°01'E, eucalypt woodland, flight intercept trap, 10 Jan–7 Mar 2006, C. Burwell, QM S80267; 1♂, Osbourne Mine site, SSE Mt Isa, Site 5B, 22°07'S, 140°34'E, pitfall, Dec 1996, QM S34724.

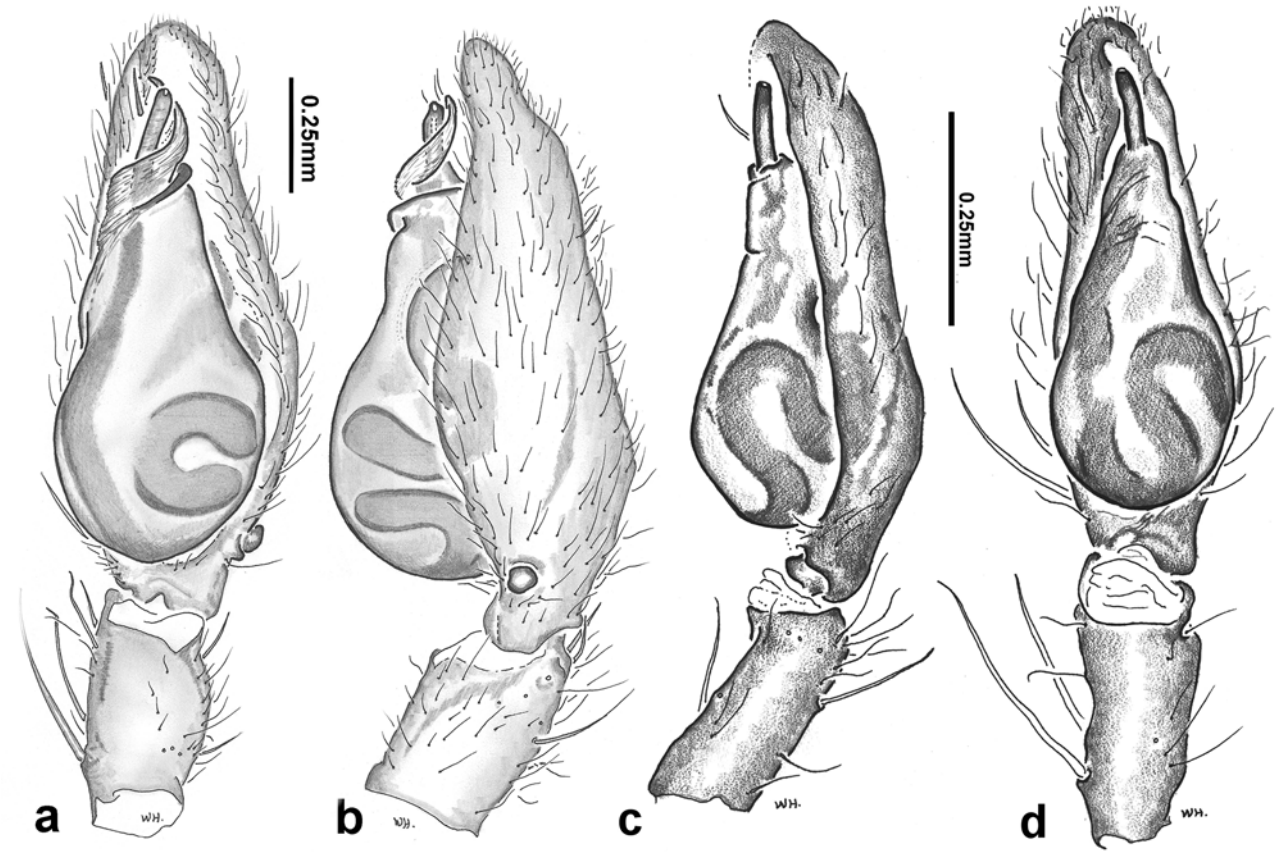


FIGURE 28. *Battalus* species, holotype male, palpal tibia, bulb and cymbium: a, b, *B. bidgemia* sp. nov., WAM 98/1649: ventral (a) and retrolateral views (b); c, d, *B. boolathana* sp. nov., WAM 98/1663: retrolateral (c) and ventral (d) views.

Diagnosis. Males resemble those of *B. rugosus* sp. nov. in the short paracymbial spine (Fig. 28a) and the broad predistal keel but differ in the long embolic tip (Fig. 28a), the distodorsal setae on the cymbium circle the tip (Fig. 31c), and coxae I are not rugose (Fig. 31d); no retrolateral spines are present on tibiae and metatarsi I and II. Female unknown.

Etymology. A noun in apposition from the type locality.

Description holotype male WAM 98/1649

Carapace 3.60 long, 2.56 wide. Abdomen 3.52 long, 2.32 wide. Total length 7.2.

Colour: carapace orange brown, darker brown marking along carapace margin and paramedially; chelicerae red brown; legs fawn, not banded; abdomen fawn brown dorsally, long brown ovoid scute in anterior half; concentric fine blue black ridges sandwiched between fawn grooves; ventrally fawn with orange brown tracheal scute; maxillae and labium red brown; sternum and coxae yellowish. Carapace: with uniform cover of fine hair; fovea short, deep. Posterior slope gradual from behind fovea. Eyes: PME>ALE =0.5 x AME>PLE. Chelicerae: small, pustulose; fang shield a rounded flange, hair horizontal, slender. Fangs moderately long, diagonal. Furrow short; dentition 2R, 2P, not opposed. Sternum: broadly cordate. Coxae I smooth ventrally. Spines: ventrally on tibiae I and II, three pairs of long, strong, attenuate spines on raised bases, plus shorter distal pair, and on palpal femur ventrally three strong erect tapering spines and strong bristle. I: fe pv1 long p2d3r1; ti p2v2.2.2.2; me p1v2.2. II: fe pv1p2d3r1; ti p2v2.2.2.2; me p1v2.2. III: fe p3d3r3; ti p2d1r2v2.2.2; me p2r3v2.2.3. IV: fe p2d3r2; pa 0; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2v3; pa p1d1; ti p2d1; cymbium 1, probasidorsal 2. Scopula: entirely absent. Claws and tufts similar size and length on all legs, tufts occur between claws (*ca.* 6 teeth). Tarsi IV ventrally with cluster of short, thick, black serrate setae. Palp: tibia with prolateral glabrous saddle; cymbium fusilliform with low, rounded paracymbial spine; narrow scopula dorsally for distal half mixed with 4–5 transverse bands of short serrate setae; bulb pyriform with very shallow pro- and retrolateral parategular indentations; pre-embolic ridge short, low; screw-like broader distal flange flat, wide, short, just behind short tube-like embolus. Abdomen: scutes: dorsal, narrow ovoid with smooth margin, almost to midlength and not extending to flank;

genital scute not enclosing pedicel, lightly sclerotised over genital region and booklungs, post-epigastric sclerites broad, closed; tracheal strongly raised wide ridge, lightly sclerotised and with short thorn-like setae near ridge.

Distribution and Habitat. Known from Bidgemia and Meedo Station, NW Western Australia, to the Gulf of Carpentaria, northwestern Queensland and south to Drummond Ra, south central Queensland. These are areas of open forest, or often sparsely covered with small trees.

***Battalus boolathana* sp. nov.**
(Figs 1a, 28c, d, 29a–f, 30j–l. Map 11)

Material. **Western Australia**: holotype ♂, Boolathana Station (BO2), 24°24'47.2"S, 113°40'30.0'E, dry traps, 28 May–2 Jun 1995, J.M. Waldock *et al*., WAM 98/1663. Paratypes: **Western Australia**: 1♀, same data as holotype, WAM 98/1663; 3♂, 20 km NE Newdegate, mallee, 8 Apr 1993, G. Harold, WAM 98/1665; 1♂, Bush Bay (BB4), 25°06'49.0"S, 113°43'51.8"E, 4 Apr–23 May 1995, wet pits, P. West *et al*., WAM 98/1664; 1♂, Nanga Station (NA1), 26°28'40.2"S, 114°04'33.6"E, 19 Jan–11 May 1995, wet pits, A. Sampey *et al*., WAM 98/1666; 1♀, Meedo Station (MD4), 25°40'49.1"S, 114°37'19.8"E, 18 May–22 Aug 1995, wet pits, N. Hall, WAM 98/1667. All taken on WAM/CALM Carnarvon Survey.

Diagnosis. Males differ from those of *B. helenstarkae* sp. nov. in that the anterior face lacks a large conical spine and from *B. rugosus* sp. nov. in the embolic tip and in the nubbin-like paracymbial spine on the cymbium; females differ from that of *B. helenstarkae* sp. nov. in the absence of the accessory lobe on the head of the spermathecae (Fig. 30l).

Etymology. A noun in apposition from the type locality.

Description. Holotype male WAM 98/1663

Carapace 3.76 long, 2.32 wide. Abdomen 4.48 long, 2.40 wide. Total length 8.2.

Colour: carapace fawn with fine brown lines in striae; light brown flecking on interstrial ridges and on caput; eye region black with pallid intrusions between eyes of back row; abdomen dorsally brown with two large white spots in anterior third; laterally extensively pallid; dorsal scute narrow almost for half length; abdomen ventrally pallid; chelicerae, fangs, maxillae and labium red brown; sternum, coxae and legs yellowish; femora with brown spots around bases of distal spines; subdistally with wide brown lateral band and band also subbasally on tibiae and metatarsi; otherwise legs fawn. Carapace: white feathery hairs grouped lateral of eyes; otherwise almost glabrous; fovea short, deep; posterior slope gradual for distal third; distinct pre-foveal saddle. Eyes: ALE clearly the smallest, *ca.* 1/2 of AME. Chelicerae not large; anterior process a rounded glabrous flange; strong horizontal spine in upper quarter anteriorly; fangs moderately long, diagonal; furrow long; dentition 2R, 2P; rows not opposed but teeth alternate. Maxillae rhomboidal with long groove along ental edge. Sternum broadly cordate but narrowing moderately strongly from coxae I; almost flat, indented behind labium; no intercoxal process. Legs: lightly hirsute; RCH absent. Spines: on prolateral metatarsus I; none retrolaterally on tibiae or metatarsi I and II. I: fe pv1p1d3r1; ti p2v2.2.2.2; me p2v2.2. II: fe pv1p2d3; ti p2v2.2.2.2; me p2v2.2. III: fe p2d3r1; ti p2d1r2v2.2.1; me p3r3v2.2.2. IV: fe p2d3r1; pa0; ti p2r2v1.2.2; me p3r3v1.1.2.3. Palp: fe p1d2; pa p1d2w; ti p2. 4 strong bristles on ventral femur of palp. Scopula: distinct for length of tarsi I–IV; sparse on metatarsi I and II. Claw tufts project forward and above claws. Palp: tibia with proventral glabrous saddle; cymbium fusilliform with nubbin-like paracymbial spine; apically truncate with narrow scopula dorsally for distal third; b; bulb simple, pyriform, without parategular indentations; pre-distal keel; embolus short, straight, tube-like. Abdomen: scutes: dorsal, a wide rectangle with smooth margin, almost for anterior third; genital, weak; no post-epigastric sclerites; tracheal, a raised semicircle with long posterior ridge, weakly sclerotised, with many short thorn setae forming short bands distally.

Allotype ♀ WAM 98/1667, as for ♂ except:

Carapace 3.76 long, 2.32 wide. Abdomen 4.48 long, 2.40 wide. Total length 8.24.

Colour: carapace darker more distinctly radial; abdomen (pattern formed by dark feathery hairs many rubbed off already) dorsally fawn with pallid spots formed by dark hair. Carapace and eyes like ♂, with ovoid PME. Chelicerae stout, vertical, with pronounced fang shield with six long curved serrate black setae in short line. Legs: trochanters with very shallow notches. RCH absent. Spines: long, strong, overlapping on tibiae I and II. I: regenerated, fe pv1 long p2d3r1; ti p2v2.2.2.2; me p2v2.2. II: fe pv1p2d3r1/r0; ti p2v2.2.2.2; me p2v2.2. III: fe p2d3r2; ti p2d1r2v1.2.1; me p3r3v2.2.3. IV: fe p2d3r1; ti p2d1r2v1.2.2; me p3r3v2.2.3. Palp: fe p1d2v4 in line; pa

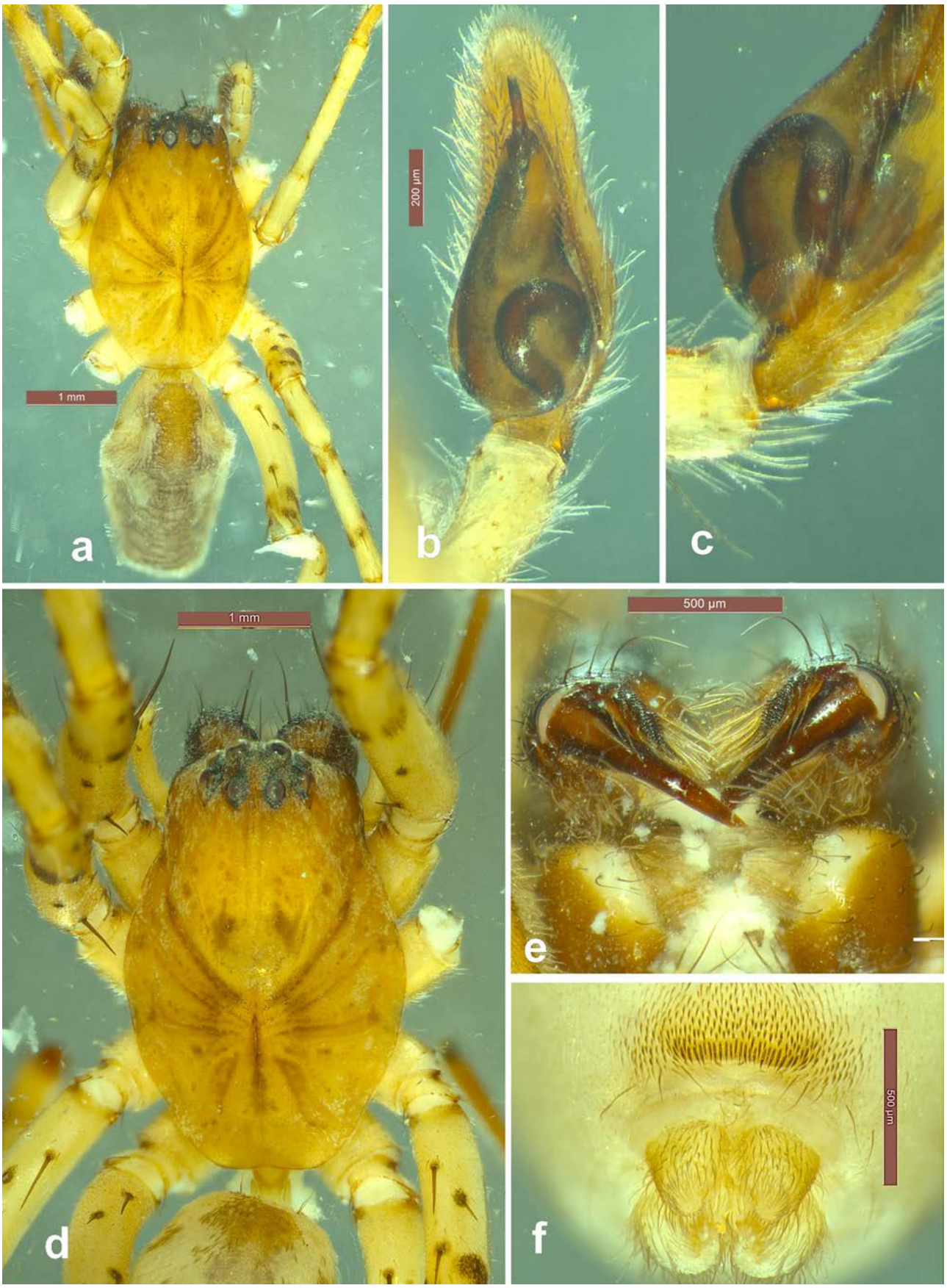


FIGURE 29. *Battalus boolathana* sp. nov., holotype male, WAM 98/1663, (a–c); allotype female, WAM 98/1667 (d–f). a, habitus; b, c, palpal tibia, bulb and cymbium, ventral (b) and retrolateral (c) views; d, female carapace, dorsal view; e, female chelicerae, ventral view; f, tracheal spiracle, ventral view.

p1d1 apical; ti p2 (basal) d1; ta p1. Palp: tarsus long, distinctly subdistally incrassate, with slender finely dentate claw with cluster of short thick setae and hairs predistally on dorsal mound. Abdomen: with small triangular scute dorsally just over anterior shoulder *ca.* for 1/8th length; genital scute lightly sclerotised; paragenital brackets evident. Tracheal ridge wide, low, in wide ovoid area with line of thorn setae across ridge and anteriorly. Epigyne: laterally with two small round fossae from which the duct sweep long and diagonal to the very folded head of spermathecae, folding further before discharging through fertilisation ducts.

Distribution. Known only from Western Australia in the Carnarvon region.

***Battalus helenstarkae* sp. nov.**
(Fig. 30a–e. Map 12)

Material. **South Australia**: holotype ♂, Renmark, 79 km NNW, 33°31'S, 140°24'E, *Casuarina* woodland, flight/ground intercept trap, 29 Mar–3 May 1995, K.R. Pullen, QM S32646. Paratypes: **South Australia**: 1♂, chenopod plain, 10 km N of Farina, 29°59'S, 138°14'E, 25 Apr 1996, D. Hirst, SAMA NN28485; allotype ♀, Calperum, 34°07'S, 140°38'E, 10–12 Nov 1996, L. Bebbington, SAMA NN28486; 1♀, near Morgan, 34°02'S, 139°40'E, redgum floodplain, Sept 1997, P. Hudson, SAMA NN8377.

Diagnosis. Males differ from those of all other known species of *Battalus* in the conical cheliceral shield tipped with a spine (Fig. 30c). Females are unusual in having spines on the ventral palpal patellae and a small retrolateral spine on femora I and II; females differ from those of *B. semiflavus* (Simon, 1896) in the 4 pairs of spines both on tibiae I and II.

Etymology. In honour of Mrs Helen Stark, accomplished artist, who illustrated many of the illustrations of the carapace and abdomen used here (see Acknowledgements).

Description holotype male QM S32646

Carapace 2.80 long, 2.08 wide. Abdomen 2.24 long, 1.60 wide. Total length 5.0.

Colour: carapace yellow brown with brown radial lines along strial ridges and caput; eye group black; abdomen dorsally red brown with medial dark brown tongue anteriorly; ventrally, sternum and labium red brown; all coxae yellowish, abdomen brown; legs yellowish with diffuse brown bands distally on femora-metatarsi, also with subbasal bands on tibiae and metatarsi and middle bands on metatarsi near spines; leg banding weak on I and II, strong on III and IV. Carapace: shiny with light cover of broad lanceolate feathery hairs. Eyes: AME much the largest. Sternum with broad lanceolate feathery hairs marginally. Chelicerae: long with long fang and almost vertical groove, dentition 2R, 3P. Large conical process at base of fang anteriorly (Fig. 30c). Legs: trochanter IV deeply notched, others shallower; almost glabrous; weak scopula on metatarsi and tarsi I and II. Spines: all strong. I: fe pv1p2d3r1; pa 0; ti p2d1w v2.2.2.2; me p2v2.2. II: fe p3d3r3; pa 0; ti p2d1(w) v2.2.2.2; me p2v2.2. III: fe p2d3r2; pa d1.1; ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p1d3r2; pa d1; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d2; ti p2d1; cymbium p2 basal. Abdomen: collapsed but no sign of large scutes; tracheal spiracle marked by broad ridge with 15–20 thorn-like spines over edge. Palp: tibia without strong ventral groove; cymbium without paracymbial spine, two long spines present basally; apex with light scopula; bulb long, tear-shaped, tapering to simple straight embolus.

Allotype female SAMA NN28486

Carapace 3.56 long, 2.56 wide. Abdomen 4.06 long, 2.94 wide. Total length 8.0. Colour: carapace orange brown with brown caput and brown radial "threads"; abdomen dorsally brown with small rectangular brown scute on anterior and dorsal edge (abdomen collapsed so extent unclear); laterally pallid with diagonal brown "threads", ventrally brown medial rectangle with paler lateral margins and pair of lines of 10 irregular pallid spots and dark sclerotised ridge surrounding wide tracheal spiracle; legs, sternum, coxae and chelicerae orange brown. Eyes: AME clearly the largest; PME with canoe-shaped tapetum. Chelicerae: geniculate; fang shield large with *ca.* 12 large serrate setae; fang tapers uniformly, diagonal. Legs: coxae smooth; RCH absent; no feathery hairs; strong setae ventrally on tarsi III and IV, not II, not forming rows as in *B. microspinosus* sp. nov. Spines: short spine retrolaterally on femora I and II; three long strong and one distal weak pair ventrally on tibiae I and II; two long strong pairs ventrally on metatarsi I and II. Palp: fe pv1d2v3; pa p1d2; ti p2d1; ta p2r1 (all basal). I: fe pv1p2d3r1 very short; pa 0; ti v2.2.2.2; me v2.2. II: fe pv1p2d3r0–1 very short; pa 0; ti p2v2.2.2.2; me v2.2. III: fe p3d3r3; pa 0; ti p2d1r2v2.2.2; me p2r2v2.2.1.+dw4. IV: fe p2d3r1l pa d1 apical; ti p2d1r2v2.2.2; me p2r2v2.1.2+dw4.

Abdomen: genital scute entire. Tracheal spiracle wide, on low sclerotised mound. Post-epigastric sclerites small, C-shaped. Epigyne: pair of large crescentic ridges posterodiagonally directed outward from midline; spermathecae with large folded head leading posteriorly through several small diverticula.

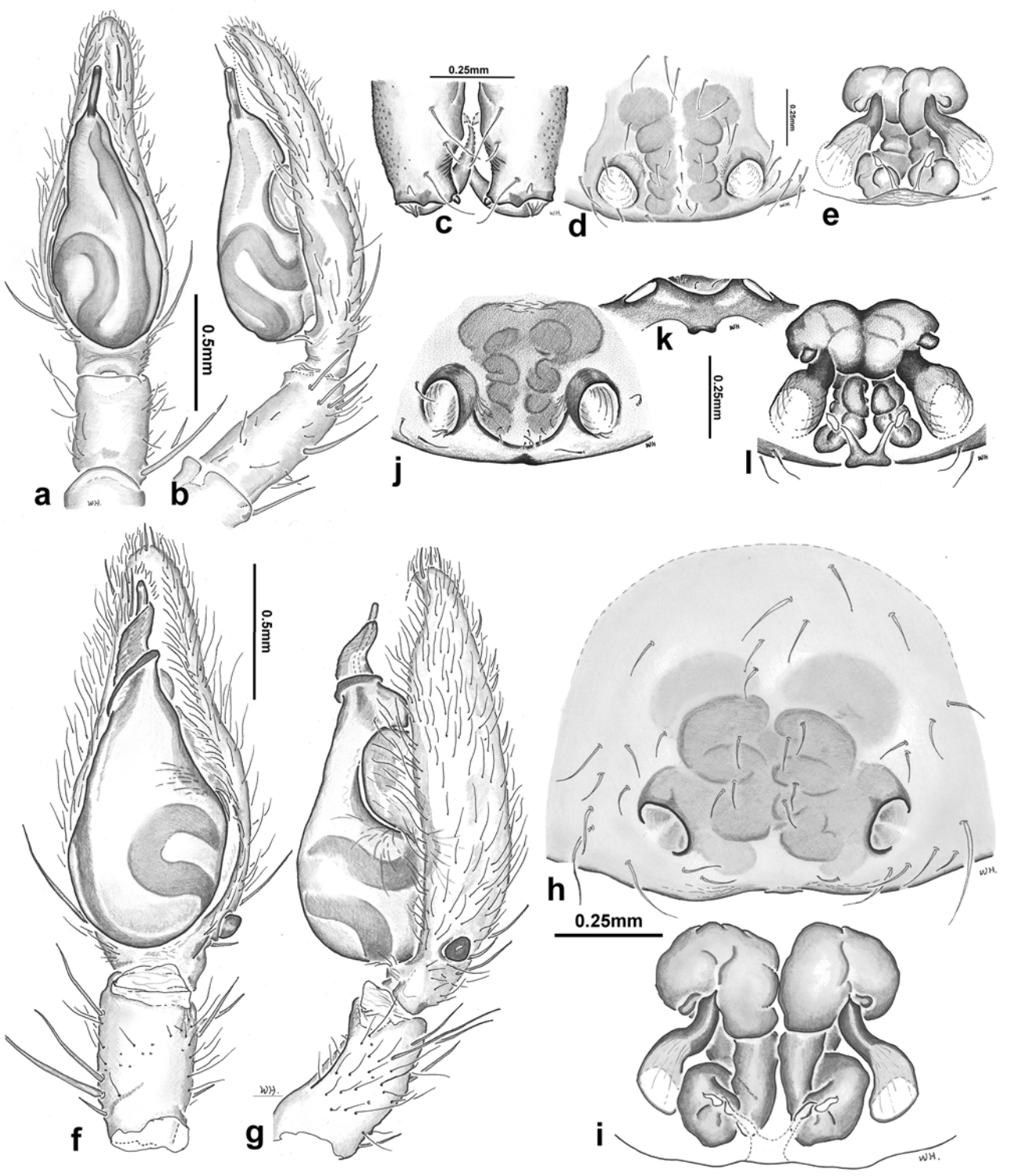


FIGURE 30. *Battalus* species. *B. helenstarkae* sp. nov., holotype male, QM S32646, a–e: palpal tibia, bulb and cymbium, ventral view (a), and retrolateral view (b), c, chelicerae, anterior view; female allotype, SAM NN8378, epigyne, external (d), and internal (e). *B. microspinosus* sp. nov., f, g, holotype male, WAM 98/1647, palpal tibia, bulb and cymbium, ventral view (f), and retrolateral view (g); female allotype, WAM T41482, epigyne: external (h), and internal (i); j–l, *B. boolathana* sp. nov., allotype female, WAM 98/1664, epigyne, internal (j), axial from behind (k), and internal (l) views.

Distribution. Known only from South Australia near the eastern border with Victoria.

Biology. The female from Calperum was taken with an egg sac of 11 large spheroidal eggs, each about 2 mm in diameter. The egg sac is a thin low dome of plastic-like silk with a broad edge that was presumably attached to a stick or rock.

***Battalus microspinosus* sp. nov.**
(Figs 30f–i, 31b, d. Map 13)

Material. Western Australia: holotype ♂, Kellerberrin, 31°38'S, 117°43'E, G.T. Smith, WAM 98/1647. Paratypes: **Western Australia**: allotype ♀, Bungalbin Hill, 30°17'S, 119°43'E, BHR4, tree mallee ecotone, pitfall, WAM Goldfields Survey 12/1981, W.F. Humphreys, WAM 98/1648; 1♂, Nungarin, 31°11'S, 118°06'E, 4 Oct 1999, R.P. Macmillan, WAM T41482.

Other Material. **Western Australia**: 1♀, Black Swan Nickel Mine, 50 km NW Kalgoorlie, 30°23'57"S, 121°40'42"E, 12 Dec 2003–5 Jan 2004, P.R. Langlands, WAM T56895; 1♀, same data but 30°23'22"S, 121°39'03"E, 11 Dec 2003–5 Jan 2004, WAM T53188. **South Australia**: 1♂, Jumby East Dam, Bungunnia Station (NE of Morgan), 33°48'S, 139°52'E, 13 Oct 1980, J. Whitehead, SAMA NN28487.

Diagnosis. Both males and females are readily distinguished from other species by the small spine-like bristles on ventral tarsi II–IV (Fig. 31b). Males closely resemble those of *B. rugosus* sp. nov. in the shape of the paracymbial spine (Fig. 30 f, g) but differ in the larger paracymbial spine, and the spermatic duct passes wide of secondary loop (not very close, as in *B. rugosus* sp. nov

Etymology. Alludes to the small spine-like setae on ventral tarsi II–IV.

Description Holotype male WAM 98/1647.

Carapace 3.76 long, 2.57 wide. Abdomen 4.40 long, 2.70 wide. Total length 9.4.

Colour: carapace light orange brown, darker in eye region; abdomen (cuticle separated) dorsally blue black with light brown oval scute to half length, three irregular paired white marks in posterior third; laterally a pallid arc around booklungs; chelicerae, fangs, sternum, maxillae and labium red brown; coxae and legs yellowish. Carapace: radial lines of short thorn-like setae on thorax, similar setae on arched caput but not in lines; fovea short, deep. Posterior slope gradual from anterior third. Chilum entire but deeply incised. Chelicerae: large; anterior process a rounded flange, hair horizontal, slender; fangs strong, long, diagonal, with thickening at basal third; furrow long; promargin with one large and one smaller tooth; retromargin with two similar medium-sized teeth, all teeth set well back from fang base and rows alternate not juxtaposed. Maxillae (Fig. 31d): rhomboidal with long groove along ental edge; small curved ridge basally. Legs: without feathery hairs. Short thick black spine-like setae ventrally on tarsi II–IV, dense cluster below claws, forming rows on III and IV (Fig. 31b). Spines: I: fe pv1 long p2d3r1; ti p1w v2.2.2.2; me v2.2. II: fe pv1p2d3r1; ti p1wv2.2.2.2; me v2.2. III: fe p3d3r3; ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r2; ti p2d1r2v2.2.2; me p3r4v2.2.3. Palp: fe p1d2v0; pa p1d1.1; ti p2d1. Scopula: weak but distinct for length of tarsi I and II; divided in distal half of metatarsi I and II. Claws and tufts similar size and length on all legs, tufts project forward and above claws. Palp: tibia with prolateral glabrous saddle; cymbium fusilliform with large domed paracymbial spine; sparse scopula apically; bulb pyriform without parategular indentations; pre-embolic keel short, low; distal flange rounded, twists to conical embolus. Abdomen: scutes: dorsal, a narrow ovoid with irregular margin, almost to midlength and not extending to flank, genital scute not enclosing pedicel, lightly sclerotised over genital region and booklungs; no post-epigastric sclerites; tracheal slightly raised, ridge wide, distinctly sclerotised.

Allotype Female WAM 98/1648. As ♂ except:

Carapace 3.25 long, 2.32 wide. Abdomen 4.19 long, 2.87 wide. Total length 8.6.

Colour: carapace light orange brown, darker in eye region; abdomen (cuticle separated) dorsally blue black with light brown oval scute to fifth length, six irregular paired white marks for posterior two-thirds, banana-shaped last mark almost to ventral edge beside spinnerets; ventrally brown with narrow central longitudinal band. Chelicerae: large; anterior process a rounded flange with band of 10–15 short, thick, serrate, curved, black setae. Fangs strong, short; furrow short. Legs: short thick black setae ventrally on tarsi II–IV, dense cluster below claws; less numerous than in ♂. Spines: I–IV, as ♂ but also II: ti p2, me p1. Palp: as ♂, but ta p2r1 all basal. Palp: dorsally, tarsus with short thorn setae for length. Abdomen: with long triangular scute dorsally just over anterior shoulder *ca.*

for 1/8th length; genital scute not sclerotized; tracheal ridge short, low, in small ovoid area. Epigyne: with two relatively large ovoid fossae laterally, internal ducts strongly folded back five times.

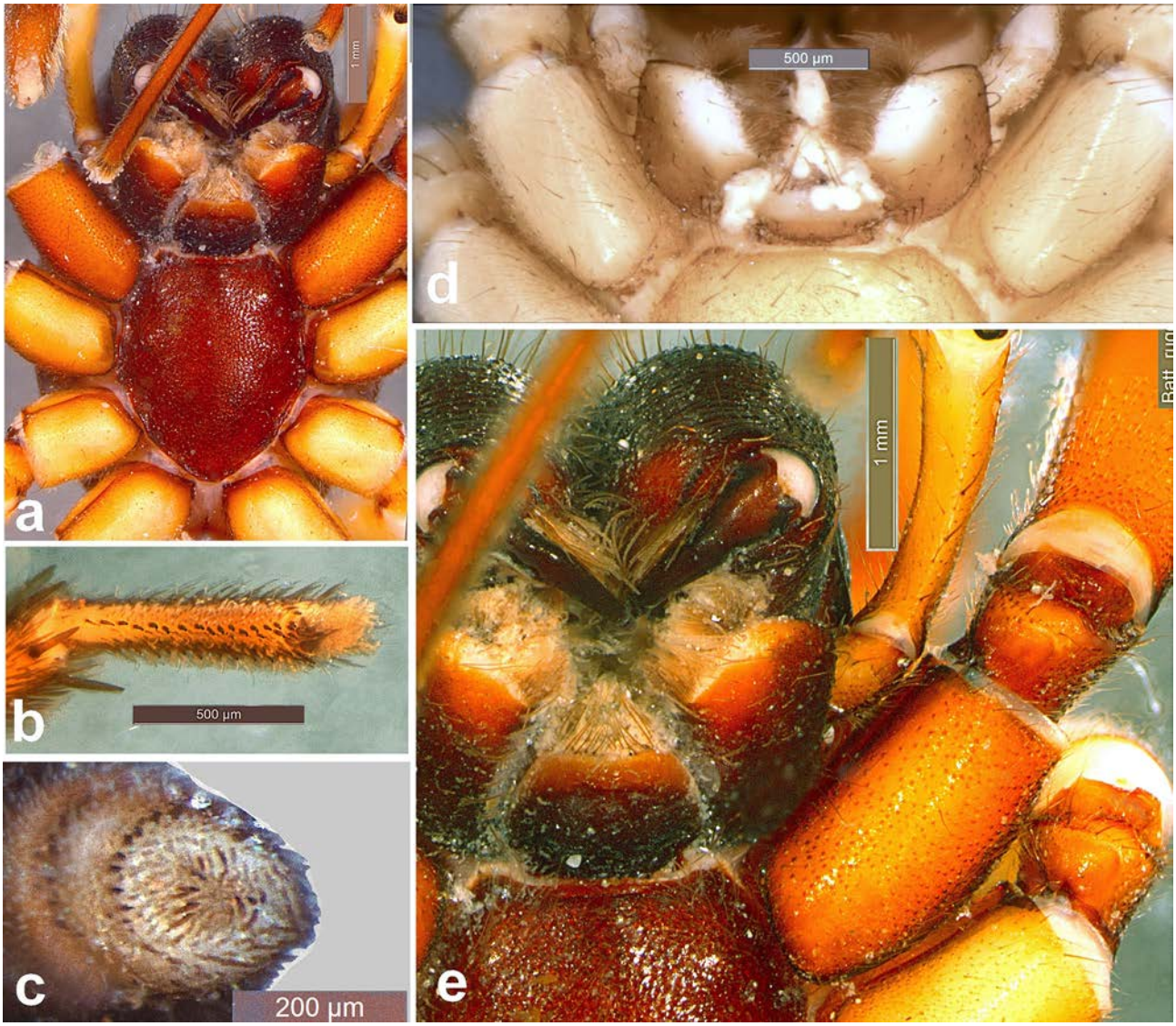


FIGURE 31. *Battalus* species. *B. rugosus* sp. nov., a, e, sternum, coxae, labium and maxillae showing rugose coxa and sternum, ventral view. *B. microspinosus* sp. nov., b, d: b, tarsi IV showing spines, ventral view; d, sternum, coxae, labium and maxillae showing smooth coxae and sternum, ventral view. *B. bidgemia* sp. nov., c, apical cymbium showing spine rows, dorsal view.

Distribution. Known only from the Goldfields in southwest Western Australia, including Kellerberrin and Bungalbin Hill, and near Morgan in South Australia.

***Battalus rugosus* sp. nov.**
(Figs 31a, e, 32a–e. Map 14)

Material. **Western Australia**: holotype ♂, Denmark, 34°58'S, 117°21'E, 2 Mar 1994, R.P. McMillan, WAM 98/1639. Paratypes: **Western Australia**: 1♂, as for holotype, WAM 98/1640; allotype ♀, Walpole, 34°59'S, 116°43'E, tree traps, 31 May 1978, S.J. Curry, WAM 98/1641; 1♀, East Nugadong Nature Reserve, 30°12'00"S, 116°53'31"E, wet pitfall trap, 24 May–17 Sep 1996, M.S. Harvey, J.M. Waldock, WAM 98/1642; 2♀, 12 miles W of Manjimup, 34°15'S 115°56'E, Mar 1971, W.H. Butler, WAM 98/1643; 1♀, Dwellingup, 32°43'S, 116°04'E, Plavins plots, 15 Apr 1977, J.D. Majer, WAM 96/8; ♂, same locality, 12 Jan 1978, S.J. Curry, WAM 98/1644; 1♂, Ludlow, 33°36'S,

115°29'E, 5 Apr 1979, WAM 98/1645; ♂, William Bay NP, Feb–Mar 1988, R.P. McMillan, WAM96/9; 1♀, Nannup, 33°59'S, 115°46'E, 26 Apr 1978, S.J. Curry, WAM 98/1646; 1♂, Denmark, 34°58'S, 117°21'E, Mar 1999, R.P. McMillan, WAM99/2393. **South Australia**: 1♀, Baird Bay, 37°09'S, 134°22'E, 1997–Dec 1998, T. Payne, WAM 99/2392.

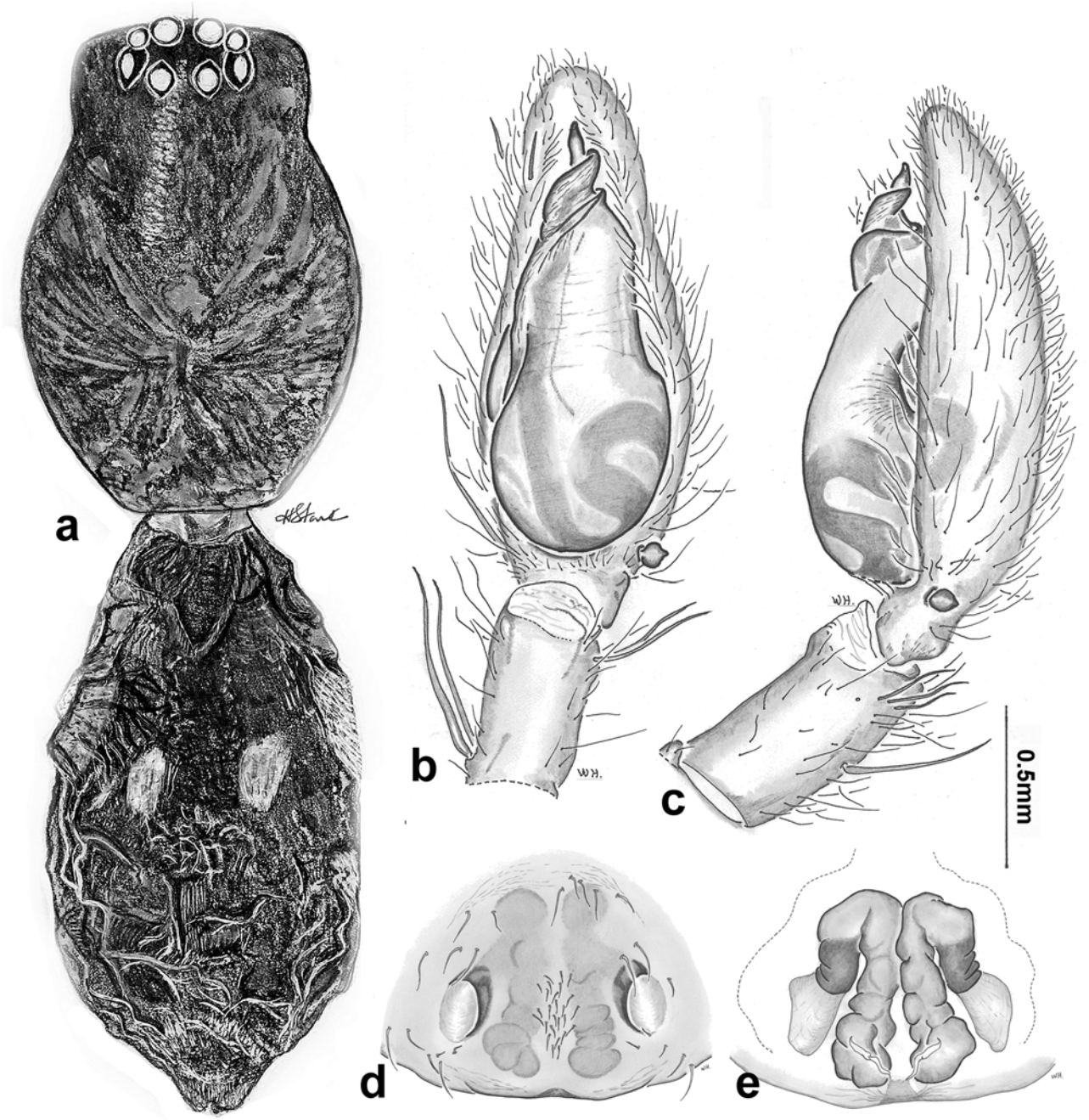


FIGURE 32. *Battalus rugosus* sp. nov., allotype female (a, d, e), holotype male, WAM 98/1639 (b, c): a, female habitus; b, c, palpal tibia, bulb and cymbium, ventral view (b), and retrolateral view (c). Female allotype, WAM 98/1642, epigyne, external (d), and internal (e).

Other Material. **South Australia**: 1♂, Naracoorte Caves Reserve, 37°02'S, 140°48'E, 18 Feb 1995, A. Baynes, WAM 95/410.

Diagnosis. Males are similar to those of *B. bidgemia* sp. nov. and *B. microspinosus* sp. nov. in the structure of the embolic flange (Fig. 32b); the rugose coxa I (Fig. 31a, e) of both males and females readily distinguish it from other species.

Etymology. The species epithet refers to the rugose surface of coxa I.

Description holotype male WAM 98/1639

Carapace 4.48 long, 3.04 wide. Abdomen 4.96 long, 2.32 wide. Total length 9.5.

Colour: carapace dark red brown, strial edges darker; abdomen dorsally brown with two large white spots in anterior third, a much smaller pair behind that and inverted U-shaped band in front of spinnerets; laterally a small pallid triangular area near booklungs and larger comma-shaped mark mid-laterally; dorsal scute narrow, almost for half length; abdomen ventrally centrally a pallid quadrangle. Chelicerae, fangs, sternum, maxillae and labium red brown; coxae and legs yellowish (I and II) to pallid (III and IV). Femora bicolored, basally half orange, distally dark brown; otherwise legs yellow to orange brown. Carapace: with uniform cover of fine hair; fovea short, deep. Posterior slope gradual from anterior third. Chilum entire but deeply incised ventrally. Chelicerae: large; anterior process a rounded flange, hair horizontal, slender. Fangs moderately long, diagonal. Furrow long; promargin with one large and one smaller tooth; retromargin with two similar medium-sized teeth, all teeth set well back from fang base. Maxillae: rhomboidal with long groove along ental edge; sternum broadly cordate but narrowing moderately strongly from coxae I; almost flat, indented behind labium. Legs: lightly hirsute. Spines: ventrally on tibiae I and II, three pairs of long, strong, attenuate spines on raised bases, plus shorter distal pair. I: fe pv1 long p2d3; ti p2r2v2.2.2.2; me v2.2. II: fe pv1p2d3; ti p2r1v2.2.2.2; me p2r2v2.2. III: fe p3d3r3; ti p2r2v2.2.1; me p3r3v2.2.3. IV: fe p2d3r1; pa0; ti p2r2v2.2.2; me p3r4v2.2.3. Palp: fe p1d2v0; pa p1; ti p2d1. Scopula: weak but distinct for length of tarsi I–III; divided in distal half of metatarsi I and II. Claws: similar sized tufts and length on all legs, tufts project forward and above claws. Palp: tibia with prolateral glabrous saddle; cymbium fusilliform with small nubbin-like paracymbial spine; narrow scopula dorsally for distal half; bulb pyriform with very shallow pro- and retrolateral parategular indentations; spermatic duct medial and very close to secondary loop; pre-embolic ridge short, low; distal flange flat, wide, short, not behind short spike-like embolus; two apices evident from below. Abdominal scutes: dorsal, narrow ovoid with smooth margin, almost to midlength and not extending to flank, genital scute not enclosing pedicel, lightly sclerotised over genital region and booklungs, no post-epigastric sclerites; tracheal slightly raised ridge wide, weakly sclerotised. Spinnerets: ALS wider than PLS but of similar length.

Allotype Female. As for ♂ except:

Carapace 4.40 long, 2.96 wide. Abdomen 5.76 long, 3.52 wide. Total length 10.2.

Colour: carapace lighter; abdomen (contracted away from cuticle) dorsally fawn brown with spots as ♂; lateral triangles much larger; regenerated femur I orange brown, not bicoloured. Ovoid PME. Chelicerae: stout vertical, with pronounced fang shield with 10–15 long curved black setae; fang shorter than in ♂; dentition 2R, 2P. Sternum with separated weak pre-coxal sclerites on III and IV. Legs: trochanters with very shallow notches. Spines: on tibiae (I) II, as in ♂. I: regenerated. II: fe pv1p2d3; ti p2v2.2.2.2; me p2v2.2. III: fe p2d3r2; ti p1r2v2.2.1; me p3r3v2.2.3. IV: fe p2d3r1; ti r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d1 apical; ti p2 (basal) d1; ta p1. Palp: tarsus long, distinctly subdistally incrassate, with slender finely dentate claw with cluster of short thick setae and hairs predistally on dorsal mound. Abdomen: with small triangular scute dorsally just over anterior shoulder *ca.* for 1/8th length, genital scute not as sclerotised as epigyne edges; tracheal scute ridge short, low, in small ovoid area. Epigyne: with two relatively large ovoid fossae laterally.

Distribution. Known only from south-western Western Australia and the Baird Bay area, South Australia.

Battalus zuytdorp **sp. nov.**
(Fig. 33a–e. Map 15)

Material: **Western Australia**: holotype ♂, Zuytdorp (ZU5), 27°14'42.9"S, 114°11'36.1"E, 16–21 May 1995, dry pits, M.S. Harvey *et al*., WAM 98/1654. Paratypes: **Western Australia**: 1♂, Bush Bay (BB2), 25°07'03.3"S, 113°48'22.5"E, 16 Jan–23 May 1995, wet pits, P. West *et al*., WAM 98/1655; 1♂, Bush Bay, 25°07'03.3"S, 113°48'22.5"E, 16 Jan–23 May 1995, BB2, wet pits, P. West *et al*., WAM 98/1653. All taken on WAM/CALM Carnarvon Survey.

Diagnosis. Males differ from those of *B. bidgemia* sp. nov. in the sinuous form of the paracymbial spine (Fig. 33a) and from all other species in having a very broad predistal keel on the embolus (Fig. 33d). Female unknown.

Etymology. A noun in apposition from the type locality.

Description holotype male WAM 98/1654

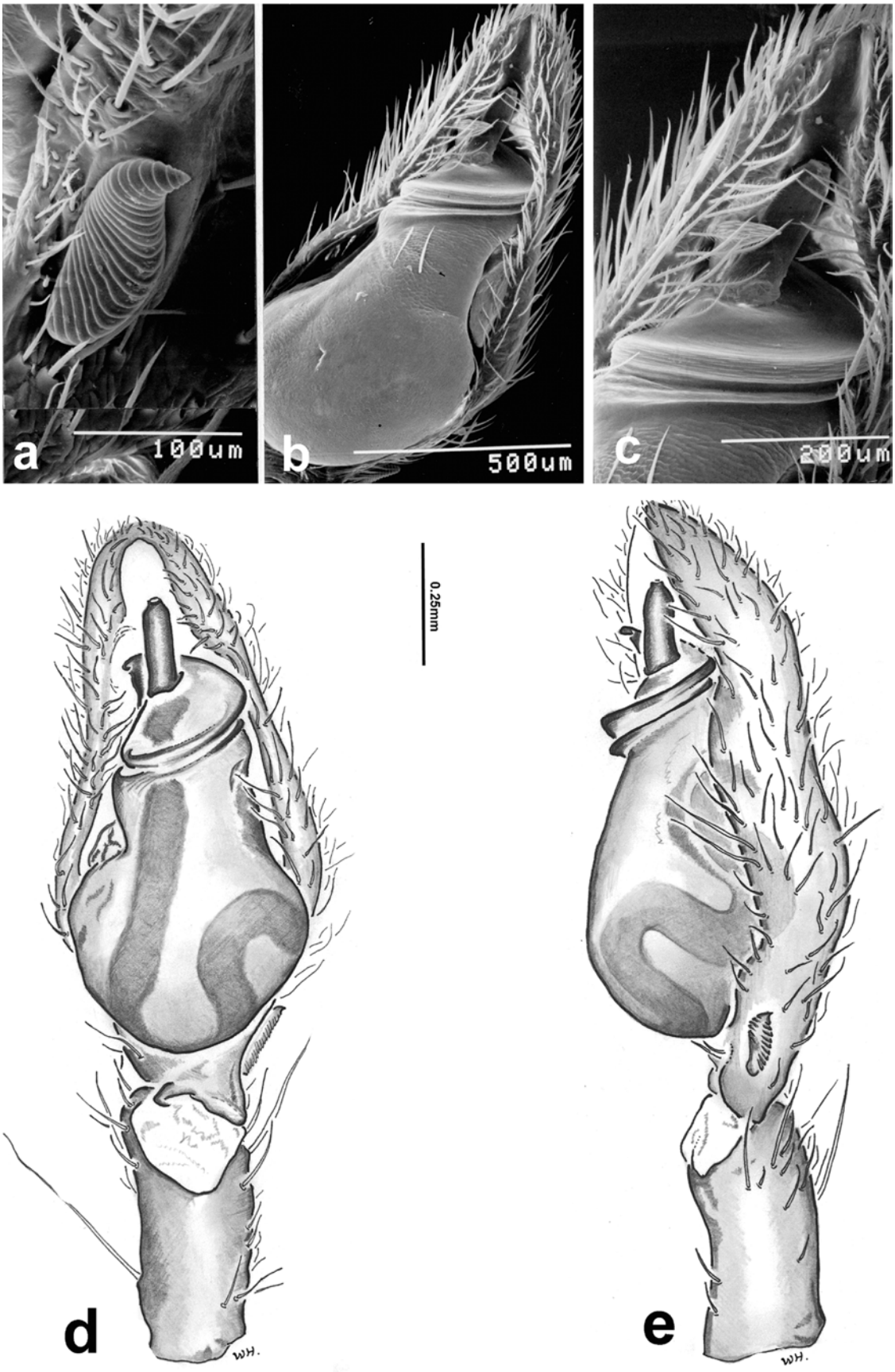


FIGURE 33. *Battalus zuytdorp* sp. nov., a–e, holotype male, WAM 98/1654: a, paracymbial spine, retrolateral view; b, palpal bulb and cymbium, ventral view; c, embolus tip, ventral view; d, e, palpal tibia, cymbium and bulb, ventral (d) and retrolateral (e) views.

Carapace 3.20 long, 2.32 wide. Abdomen 3.60 long, 1.76 wide. Total 7.0.

Colour: carapace and chelicerae dark red brown; abdomen blue black with pair of small round tufts of white hair just behind scute. Femora: I without bands, red brown with pallid oval areas laterally; II–IV fawn with dark band for distal quarter; legs otherwise orange brown; sternum, maxillae, labium and coxae I red brown, other leg coxae fawn; abdomen ventrally blue black. Maxillae with sharp, deep, recurved diagonal trough basally. Sternum with distinct ridge around margin. Chelicerae: robust without anterior flange but low domed glabrous area; fangs long, dentition 2R, 2P, teeth on squared, raised process with steep dorsal face. Legs: RCH not evident. Spines: ventrally on tibiae I and II, three pairs of long, strong, attenuate spines on raised bases, plus shorter distal pair. I: fe pv1 long strong p1d3; ti p2–4v2.2.2.2; me p2v2.2. II: fe p1d3; ti p2v2.2.2.2; me p2v2.2. III: fe p2d3r2; ti p2r2v2.2.1; me p3r3v2.2.3. IV: fe p3d3r2; pa0; ti p2d2r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1; ti p2d1. Palp: tibia prolaterally excavate; cymbium, viewed dorsally, asymmetrical and retrobasally with flat sinuous paracymbial spine in broad excavation; weak scopula dorsally in distal fifth; b; bulb large, pyriform, with double pre-embolic keel with wide flat distal face sweeping behind short blunt embolic spike.

Distribution. Known only from Zuytdorp and Bush Bay, north-west Western Australia.

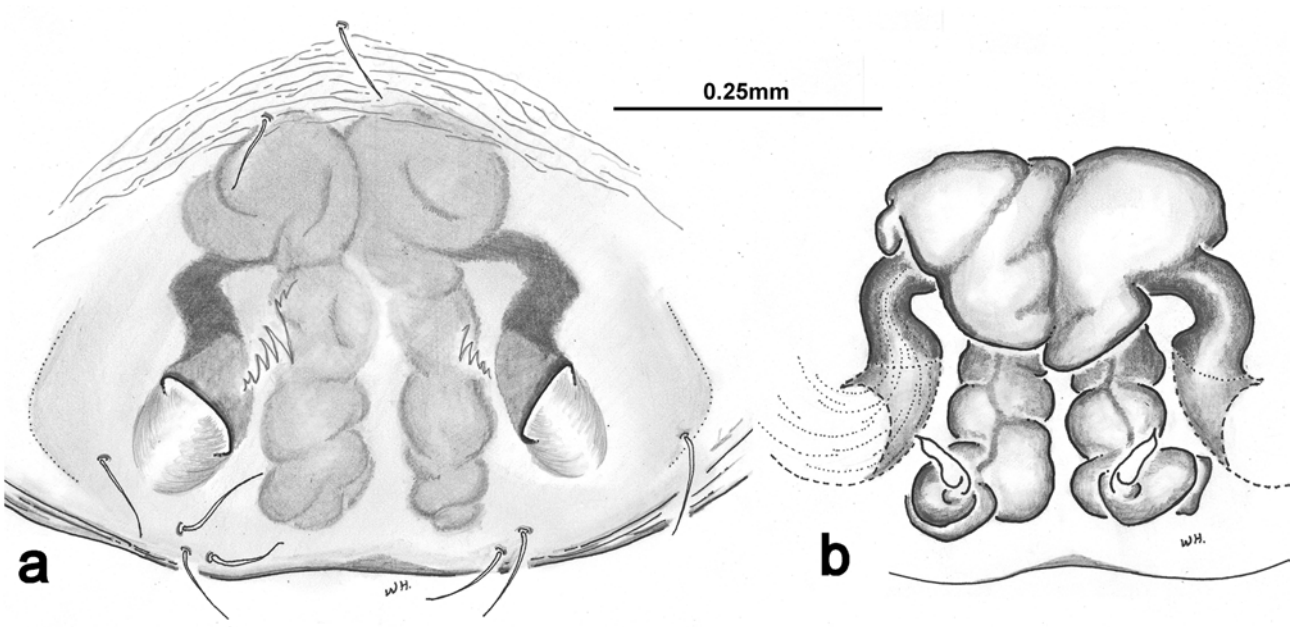


FIGURE 34. *Battalus semiflavus* (Simon, 1896) syntype female MNHP-18212, epigyne, external (a) and internal (b) views.

***Battalus semiflavus* (Simon, 1896), comb. nov.**
(Fig. 34a, b. Map 16)

Medmassa semiflava Simon, 1896: 414; Rainbow, 1911: 257.
Medmassa semilutea (lapsus): Simon, 1897: 191.

Material: **Queensland:** lectotype ♀ and paralectotype ♀, here designated, "Cooktown", MNHN 182122.

Diagnosis. Females differ from those of *B. helenstarkae* in having five pairs of spines on ventral tibia I but only four pairs on II, and from *B. spinipes* in the much larger head of the spermathecae (Fig. 34b). Male unknown.

Description lectotype female (the chelicerae of both ♀ have already been rammed almost off.)

Carapace 3.18 long, 2.40 wide. Abdomen 4.60 long, 3.20 wide. Total length 8.0.

Colour: carapace orange brown with central region darker with darker U-shaped marks on interstrial ridges; femora brown orange, legs otherwise yellowish; abdomen dorsally brown with fine white mottling, small red brown scute extends just onto dorsal surface; large white area begins anterolaterally and ventrally encloses booklungs and forms two parallel white bands enclosing dense brown ventral zone. Carapace: finely and sparsely pustulose with points; margins pustulose; fovea long, set behind centre; posterior slope gradual; almost glabrous. Chelicerae: partially detached in both females, robust; rounded lobe at outer fang base with 10–15 long curved

serrate fang bristles; dentition: 2R; 2P; fang long, groove transverse. Eyes: front row almost straight; AME *ca*. 1.5–2 times ALE; AME>PME=PLE>ALE. Back row procurved. Rows of similar width. Labium: subquadrate; maxillae broad without lateral constriction or groove, sternum broadly cordate. Legs: trochanters with shallow notches. Spines: all strong especially on tibiae and metatarsi I and II. I: fe p1d3; ti v2.2.2.2.2; me v2.2. II: fe p2d3; ti v2.2.2.2; me v2.2. III: fe p2d3r1; pa 0; ti p2d1r2v2.2; me p2d1r2v2.2.3. IV: fe p1d3r1; pa 0; ti p2d1r2v2.2.2, me p3r3v2.2.2. Palp: fe p1 strong d2 v2 strong; pa p1 strong d1; ti p1d1v1 (long); ta pv2 basal. Palp: two strong spines on ventral femora; tarsus long, predistally incrassate. Epigyne: paragenital zones present. Externally with two diagonal ridges; internally with large irregularly shaped head of spermathecae with racemose ducts posteriorly. Abdomen: dorsal scute just reaches dorsal surface. Colulus weak, pallid. Tracheal scute ovoid with distal ridge.

Distribution. Known only from Cooktown, northeastern Queensland but given the dislocation of other species reported from Cooktown (see *Leptopicia bimaculata* (Simon, 1896)), the type locality is presumably much west of Cooktown.

Remarks. The inclusion of *Medmassa semiflava* in *Battalus* is supported primarily by the form of the spermathecae but is nevertheless equivocal. Discovery of the male of the species should provide clarity as to its generic affiliations.

Copa Simon, 1886

Copa Simon, 1886: 396; Simon, 1897: 173; Roewer, 1955: 619; Deeleman-Reinhold, 2001: 359; Haddad, 2013a: 5. Type species by original designation, *Copa flavoplumosa* Simon, 1886 (Africa).

Diagnosis. See species.

Description. See Deeleman-Reinhold, 2001: 261. RCH absent. Female spinnerets, see Fig. 8a.

Distribution. Africa, Madagascar, Sri Lanka, Australia.

Remarks. Haddad (2013a) revised the continental Afrotropical species of *Copa* and included only the type species *Copa flavoplumosa* Simon, 1886 and a new species *Copa kei* Haddad, 2013, with *Copa agelenina* Simon, 1910 listed as a *nomen dubium*. He documented remarkably different abdominal patterns, one strongly resembling those in the *Nyssus albopunctatus* species group and rediagnosed the genus.

Copa kabana sp. nov.

(Figs 3b, 35, 36a–e, 135. Map 17)

Material. **Queensland**: holotype ♂, Mapleton Falls NP, 26°38'S, 152°51'E, rainforest, flight intercept trap, 30 Nov 1991–8 Jan 1992, D.J. Cook, QM S31538. Paratypes: **Queensland**: 2♂, Boombana NP (BCC1), 27°24'S, 152°47'E, rainforest, 7 Nov 2003, QMP, QM S54576, QM S65233; 1♂, Brooyar Fire Tower, via Glastonbury, 26°10'S, 152°28'E, rainforest, pitfall, 23 Aug 1975–29 Feb 1976, G. & S. Monteith, QM S29400; 1♀, Cainbable Ra, Lamington NP, 28°14'S, 153°08'E, rainforest, pitfall, 31 Jan–11 Apr 1976, G. & S. Monteith, QM S29514; 1♀, Casey Ck, via Imbil, 26°28'S 152°41'E, rainforest, pitfall, 31 Dec 1974–27 Mar 1975, G. & S. Monteith, QM S39293; 1♀, Cooyar, Maidenwell Rd, 26°56'S, 151°49'E, rainforest, pitfall, 25 Jan–1 May 1976, G. & S. Monteith, QM S29406; 1♀, Cunninghams Gap, 28°03'S, 152°24'E, rainforest, intercept flight trap, 1 Dec 1991–6 Jan 1992, D.J. Cook, QM S39295; 1♀, Curtis Farm, Canungra, 28°04'S, 153°07'E, rainforest, pitfall, 27 Nov 1976–23 Jan 1977, G. & S. Monteith, QM S29401; 1♀, Dwyer Creek, Imbil, 26°28'S, 152°38'E, hoop pine scrub, flight intercept trap, 24 Sep 2001–15 Jan 2002, G. Monteith, QM S60632; 1♂ 1♀, Kroombit Tops (site 5), 24°25'S, 151°03'E, rainforest, pitfall, 10–18 Dec 1983, G. Monteith, V. Davies, J. Gallon, G. Thompson, QM S29476; 1♀, Kroombit Tops, Beauty Spot 98, 24°22'S, 151°01'E, rainforest, 9–19 Dec 1983, G. Monteith, G. Thompson, QM S29494; 1♀, Kroombit Tops, Beauty Spot 98 (site 2), 24°25'S, 151°03'E, rainforest, pitfall, 10–18 Dec 1983, G. Monteith, V. Davies, J. Gallon, G. Thompson, QM S29496; 1♀, Lamington NP, Lukes Bluff Rd, 28°19'S, 153°05'E, rainforest, pitfall, 12–27 Dec 1981, G. Monteith, R. Raven, D. Yeates, QM S29588; 1♀, Lamington NP, O'Reillys, Wishing Tree Circuit, 28°15'S, 153°09'E, rainforest, pitfall, 9 Feb 1982–19 Mar 1982, J. Gallon, D. Yeates, G. Thompson, QM S29487; 1♂, Little Yabba Ck, 26°37'S, 152°41'E, rainforest, intercept flight trap, 30 Nov 1991–7 Jan 1992, D.J. Cook, QM S25199. Mapleton Falls NP, 26°38'S, 152°51'E, rainforest, intercept flight trap, D.J. Cook: 1♂, 8

Jan–3 Mar 1992, QM S52242; allotype ♀, 30 Nov 1991–8 Jan 1992, QM S31539; 1♂ 1♀, same data, QM S31540. 1♂ 1♀, Mary Cairncross Pk, 26°46'S, 152°52'E, rainforest, flight intercept trap, 29 Nov 1991–8 Jan 1992, D.J. Cook, QM S43405; 1♂, Mooloolah R, (Glenview), 26°45'S, 153°00'E, rainforest, pitfall, 27 Sep 1977–2 Jan 1978, G. & S. Monteith, QM S29405; 1♀, Mt Archer, Kilcoy, 26°57'S 152°34'E, rainforest, 29 Apr 1985, J. Gallon, QM S29385. Mt Glorious, 27°20'S, 152°46'E, rainforest, malaise trap, A. Hiller: 1♂, 10 Aug–13 Nov 1983, QM S29500; 1♂, Sep 1978, QM S39291; 1♂, Mt Glorious, 27°20'S, 152°46'E, malaise trap, Jun–Jul 1977, QM S29386; ♀, 28 Feb 1990, K. Hiller, QM S15655; 1♂ 1♀, Mt Goonaneman, 25°26'S, 152°08'E, pitfall, 3–7 Nov 1980, R. Raven, V. Davies, QM S29383; 1♂, Mt Mee, 27°03'S, 152°41'E, rainforest, intercept flight trap, 29 Nov 1991–8 Jan 1992, D.J. Cook, QM S31638; 1♂ 1♀, Mt Tamborine, 27°58'S, 153°12'E, rainforest, pitfall, Dec 1978–Jan 1979, J. Grimshaw, QM S29384; 1♂ 1♀, Nichols Scrub, 28°11'S, 153°26'E, rainforest, intercept flight trap, 1 Jan 1992–4 Mar 1992, D.J. Cook, QM S25072; 1♀, Nichols Scrub, 28°11'S, 153°26'E, rainforest, intercept flight trap, 9 Dec 1991–1 Jan 1992, D.J. Cook, QM S25069. Ravensbourne NP, 27°22'S, 152°11'E, rainforest, pitfall: 1♂, 7 Jan–1 Mar 1992, D.J. Cook, QM S31639; 1♀, 1 Dec 1991–7 Jan 1992, QM S25063; 1♀, intercept flight trap, 7 Jan–1 Mar 1992, QM S25170. 1♂, Saddletree Ck, Bunya Mtns, 26°51'S, 151°38'E, rainforest, pitfall, 1 Dec 1991–7 Jan 1992, D.J. Cook, QM S50418; 1♀, Sunday Ck, 26°40'S, 152°34'E, rainforest, pitfall, 18 Dec 1996–20 Jan 1997, G. Monteith, QM S39292; 1♀, The Head, via Killarney, 28°23'S, 152°19'E, rainforest, pitfall, 17 Nov–27 Dec 1974, G. & S. Monteith, QM S39294; 1♀, Toowoomba, Boyce Reserve (GMP60), 27°34'S, 151°57'E, pitfall, 1976–1977, G. & S. Monteith, QM S29583; 1♀, Tungi Ck, via Jimna, 26°40'S, 152°28'E, rainforest, intercept flight trap, 18 Dec 1996–20 Jan 1997, G. Monteith, QM S39296; 1♂, Tungi Ck, via Jimna, 26°40'S, 152°28'E, rainforest, pitfall, 18 Dec 1996–20 Jan 1997, G. Monteith, QM S39290; 1♀, Upper Tallebudgera Valley, 28°15'S, 153°16'E, rainforest, pitfall, 8 Jan–17 Mar 1985, G. Monteith, G. Thompson, D. Cook, QM S29478; 1♀, Enterprise Mine, Mallee #2, 27°35'S, 153°26'E, mallee, 7 Jan 2002, QMP, QM S56290; 1♂ 1♀, Little Yabba Ck, 26°37'S, 152°41'E, rainforest, intercept flight trap, 7 Jan–2 Mar 1992, D.J. Cook, QM S43400; 1♀, Yarraman, Cooyar Ra, 26°52'S, 151°54'E, rainforest, pitfall, 1 Dec 1991–7 Jan 1992, D.J. Cook, QM S43402. **New South Wales**. 1♂, Bruxner Park, 30°14'S, 153°06'E, rainforest, 12 Nov 1980, R.J. Raven, QM S29511; 1♀, Enterprise Mine, Mallee #2, 27°35'S, 153°26'E, mallee, 7 Jan 2002, QMP, QM S56290; 1♂ 1♀, Little Yabba Ck, 26°37'S, 152°41'E, rainforest, intercept flight trap, 7 Jan–2 Mar 1992, D.J. Cook, QM S43400; 1♀, Yarraman, Cooyar Ra, 26°52'S, 151°54'E, rainforest, pitfall, 1 Dec 1991–7 Jan 1992, D.J. Cook, QM S43402.

Diagnosis. Males differ from those of other Australian Castianeirinae in the absence of a paracymbial spine and cylindrical male palpal tibia, and females differ from those of *Ozcopa,* which they closely resemble, in the much smaller copulatory fossae. Males of *Copa kabana* sp. nov. differ from those species in the sinuous, not spiralled embolus (Fig. 36b) and females in the shorter copulatory ducts (Fig. 36e).

Etymology. The species epithet is a phonetic version of the famous beach in Brasil, Copacabana.

Description holotype male QM S31538

Carapace 3.52 long, 2.64 wide. Abdomen 2.96 long, 1.92 wide. Total length 6.5.

Colour: carapace orange brown with dark brown scallops along edges and band of brown laterally and on clypeus (darkest in posterior third); legs orange brown, femora darker with brown areas distally on femora I–III, tibiae III and IV, and in basal half of metatarsi IV; a bdomen brown dorsally with central pallid region, narrowing posteriorly, ventrally dark brown with narrow pallid flanks. Sternum, maxillae and coxae light orange brown. Carapace: light cover of pallid and black feathery hairs with few long bristles; margins with evenly sparse horizontally directed short black setae; fovea straight, closed. Lateral profile of carapace (Fig. 3b): high but more or less flat or slightly arched for its length; marginally highest point behind fovea at shallowly sloping posterior declivity; eyes set behind clypeus edge. Retrolateral face of large chelicerae smooth. Eyes: AME largest; with pile of white hairs lateral of group. Chelicerae: vertical and deep (front to back); fang shield small rounded. Fang slightly diagonal, groove long, almost vertical; two teeth high on retromargin and one large and one small basally on promargin plus very small tooth distally. Retrobasal ridge low, distinct, setose. Maxillae: serrula long; inner margin excavate, sloping, outer convex; anterior edge truncate. Labium *ca.* as long as wide. Sternum widely cordate, intercoxal projections on I/II, II/III; separate pre-coxal sclerites at II–IV; uniformly and lightly setose. Legs: trochanters clearly notched, *ca.* twice as wide as deep; light to very light cover of dark feathery hairs on femora to metatarsi; erect scopula hairs sparse on metatarsi and tarsi I and II. Spines: (erect) I: fe pv1p2d3r4; pa 0; ti v2.2.2; me v2.2. II: fe pv1p2d3r3; pa 0; ti v2.2.2; me v2.2. III: fe p3d3r3; pa 0; ti p2d1r2v2.2.2; me p3r3v2.2.2. IV: fe p3d3r2; pa 0; p2r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2; rest long bristles. Claws: with *ca.* 5 teeth with tufts

similar on I and IV. Abdomen: covered with feathery hairs. Scutes: dorsal small, oval, lightly sclerotised; genital scute without anterior collar or thickened edge; tracheal spiracle overhung by small triangular scute with posterior nipple. Pedicel a small winged triangle from below, not fused to sternum. Spinnerets: PLS about 2/3 size of ALS and clearly bigger than PMS. Palp: tibia cylindrical, save for shallow ventral depression for length; cymbium long, without paracymbial spine, symmetrical groove to tip, without apical spine or scopula; large trianguloid scooped plate is part of basal haematodocha; bulb simple, narrow pyriform with slight enlargement at embolus base, but then tapering gradually in long fine gently curved hook; sperm duct large, overlaps itself basally and mid-distally, then undulates into embolus; prolateral cymbium basally with depression locking with opposed tibial process.

FIGURE 35. *Copa kabana* sp. nov., male: habitus (Photo: R. Raven).

Allotype female QM S31539. Like ♂ except as follows:

Carapace 3.44 long, 2.48 wide. Abdomen 4.24 long, 2.80 wide. Total length 7.7.

Chelicerae with one large and one small basal tooth on promargin, two large on retromargin; fang shield distinct, squared with many long thick curved bristles; retrobasally with band of short thorn-like setae. Spines: on tibiae I and II and metatarsi, ventral spines long strong and overlapping (5–10%); other leg spines also long, strong. I: fe pv1p2d3r1; ti v2.2.2; me v2.2. II: fe pv1p2d3r2; ti v2.2.2; me v2.2. III: fe p3d3r3; pa 1 apical bristle; ti p2d1r2v.2.2.0; me p3r3v2.2.3. IV: fe p2d3r2; pa 1 apical bristle; ti p2d1r2v1.2.2; me p3r3v2.2.3(1). Palp: fe p1d2; pa p1d2; ti p2 basal d1; ta p2r1, all basal, v3 apically. Legs: feathery hairs on femora–metatarsi; no scopula. Claw tufts dense, similar on I and IV. 5–7 teeth on paired claws. Palp: slender curved claw with *ca*. 3 small teeth; tarsus converges gently to tip without dense hairs of pre-apical widening. Abdomen: with small square scute on anterior

face. Spinnerets: PMS large with three enlarged cylindrical gland spigots apically; PLS slightly smaller than ALS with 2 large cylindrical gland spigots, ALS with ental subfield of small pyriform gland spigots. Tracheal scute like ♂. No dorsal or ventral scute, weakly sclerotised genital scute. Epigyne: broad with two very small lateral fossae directed medially, internally with copulatory ducts and ridges directed medially, large anterior lobe and bean-shaped smaller posterior lobe.

Distribution and Habitat. Widespread in rainforests of south-eastern Queensland to northern New South Wales, from Kroombit Tops, through the Conondale and D'Aguilar Ranges to the Border Ranges.

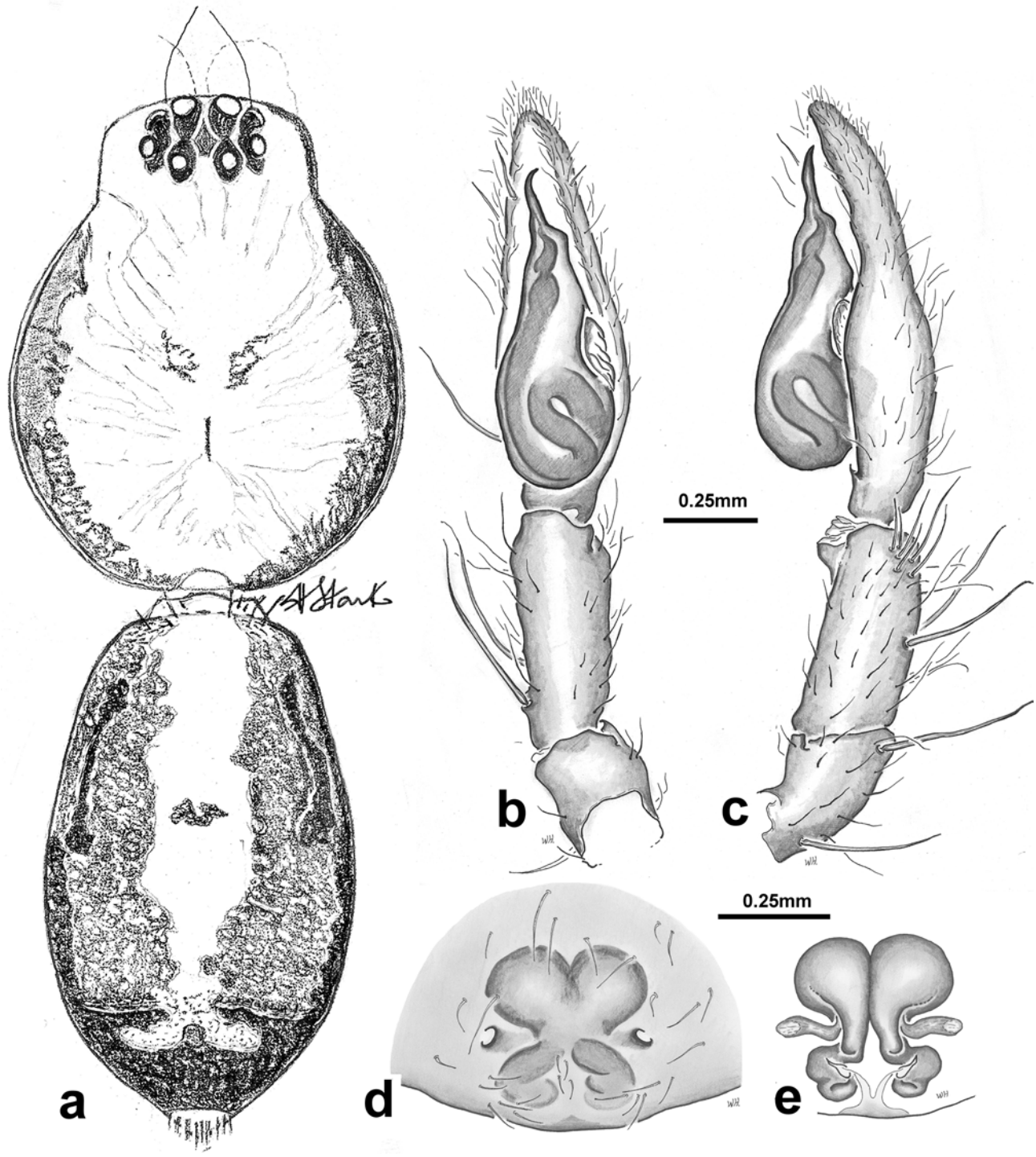


FIGURE 36. *Copa kabana* sp. nov., male: a, habitus; b, c, holotype male QM S31538, palpal tibia, bulb and cymbium, ventral view (b), and retrolateral view (c). Female allotype, QM S31539, epigyne, external (d), and internal (e).

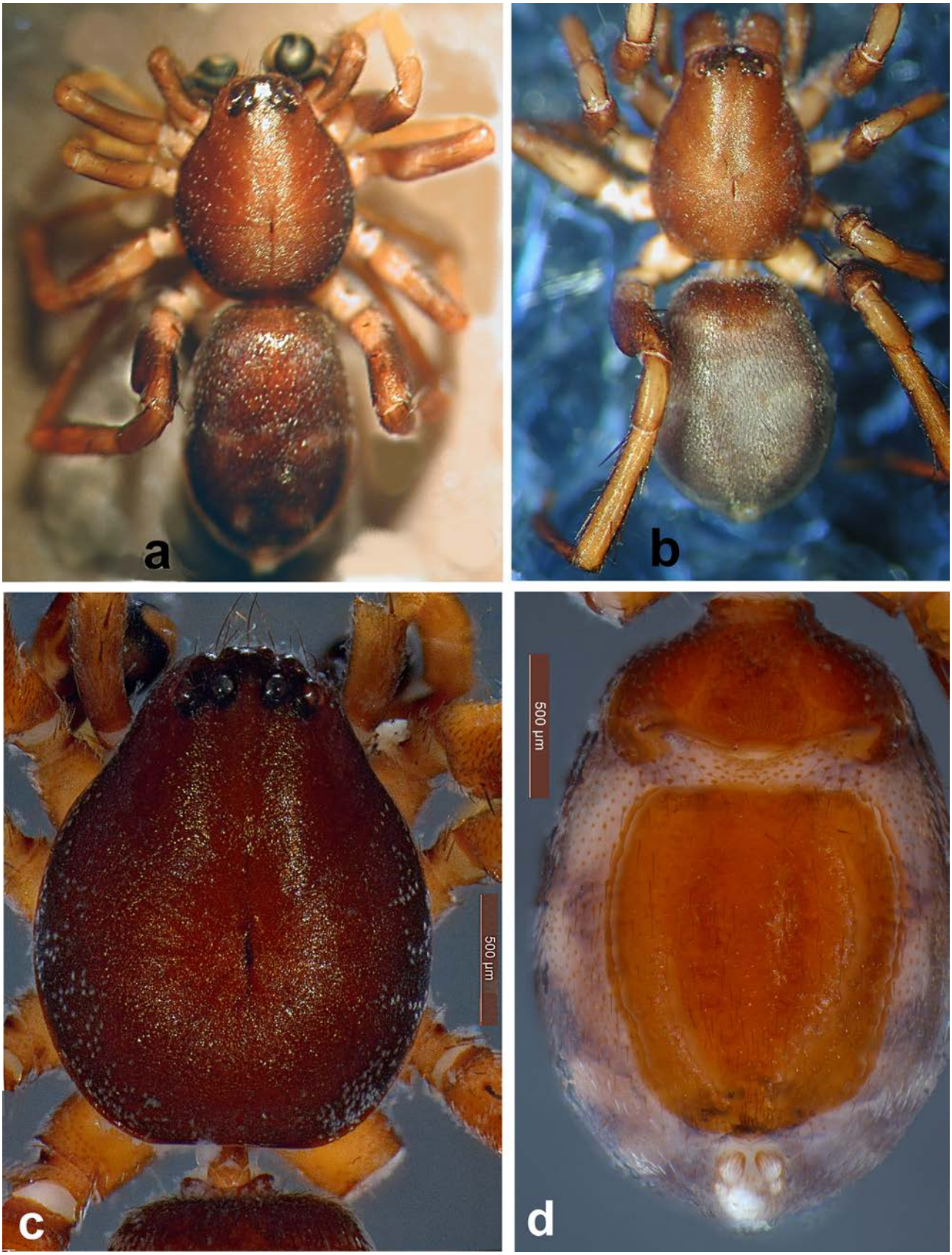


FIGURE 37. *Disnyssus* spp. nov., habitus: a, *D. judidenchae* sp. nov., male; b–d, *D. helenmirrenae* sp. nov., b, female; c, d, male, QM S50880; c, caparace; d, ventral abdomen showing post-epigastric sclerites and scutes.

MAPS 13–18. Records of Australian species of *Battalus* Karsch, 1878, *Copa* Simon, 1985, and *Disnyssus* gen. nov.

***Disnyssus* gen. nov.**

Diagnosis. Differs from all other Australian corinnids in having the back eye row straight to recurved (Fig. 16a, as in the Pacific *Melanesotypus* gen. nov.) and further from most castianeirines, except *Nucastia*, in the absence of or strong reduction of spines on tibiae I and II. Differs from the Asian *Coenoptychus* Simon, 1885 and *Aetius* O.P.-Cambridge, 1896 in the weakly (versus strongly) recurved posterior eye row and further from *Aetius* in the presence of a paracymbial spine (Fig. 38a, d); males of *Coenoptychus* are unknown.

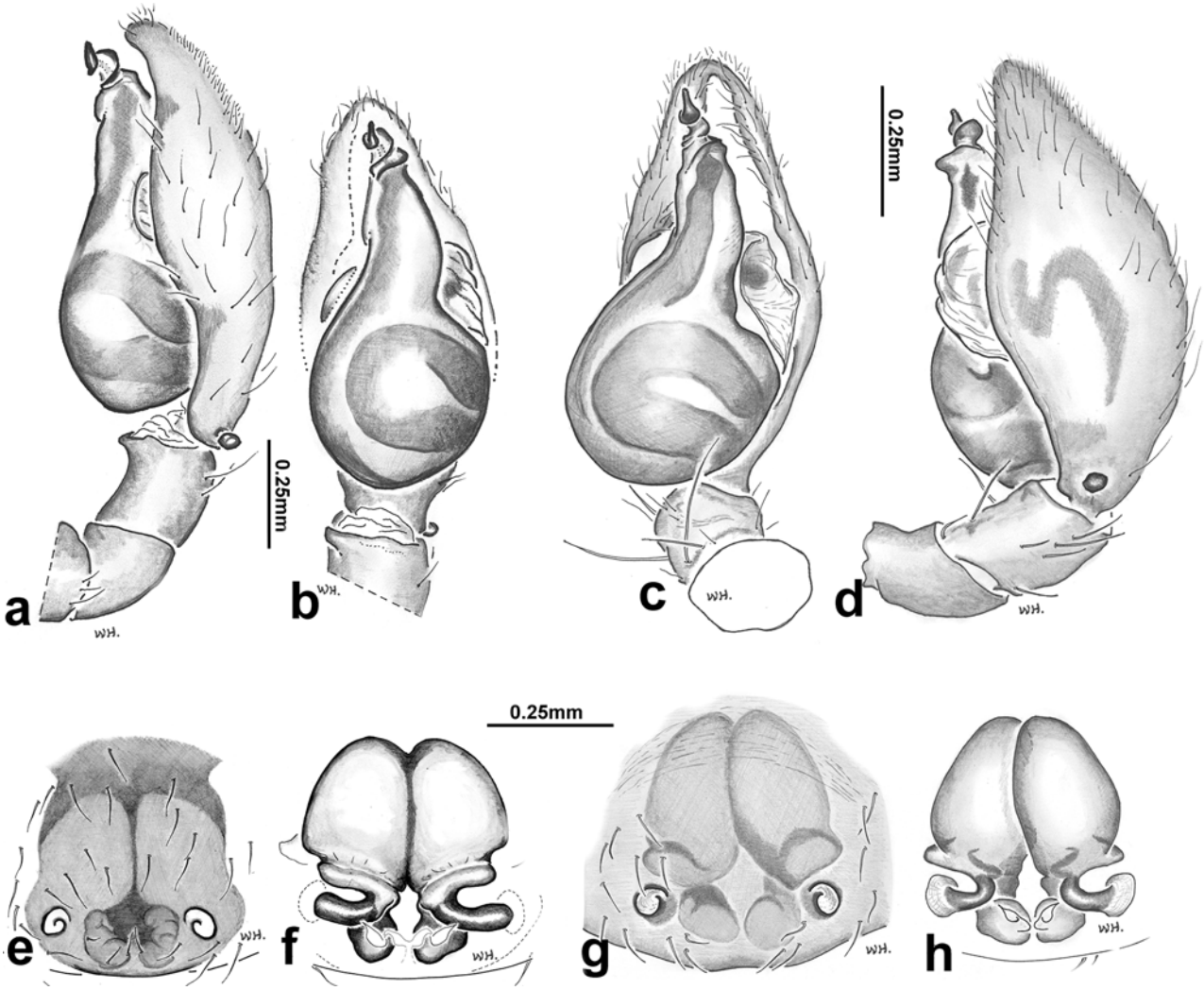


FIGURE 38. *Disnyssus* spp. nov.: a, b e, f, *D. helenmirrenae* sp. nov., male QM S34648; *D. judidenchae* sp. nov.; c, d, g, h; holotype males, QM S29523, palpal tibia, bulb and cymbium, ventral view (a, c), and retrolateral view (b, d). Female allotypes, QM S36358, QM S39420, respectively, epigyne, external (e, g), and internal (f, h).

Type species: *Disnyssus helenmirrenae* sp. nov.

Species included: *Disnyssus helenmirrenae* sp. nov. and *D. judidenchae* sp. nov.

Etymology. The genus name alludes to the recurved posterior eye row, dis- meaning away, in contrast to that in *Nyssus* in which it is procurved. The gender is masculine.

Description. Colour: carapace and abdomen dark brown, legs red brown with dark brown bands on femora and patellae. Leg IV much thicker and longer than I (Fig. 37a, b). Carapace pear-shaped, steep-sided laterally and posteriorly, wide, teardrop-shaped, flat plateau around fovea; white feathery hairs sparse in wide marginal band and onto dorsal abdomen; fovea short, deep; caput low; indistinct posterior striae; cuticle finely pustulose. Eyes: eight of similar sizes (Fig. 16a). Front row within 0.5 diameter of adjacent eye, recurved slightly. Back row 1.5–2 diameters apart, all circular; clearly recurved. Lateral profile of carapace (Fig. 1b): low and flat or slightly arched for its length; marginally highest point at fovea; steep posterior declivity; eyes set behind clypeus edge. Retrolateral

face of small chelicerae smooth. Chelicerae vertical with large boss; fang relatively short, females with enlarged fang mound setae; promargin with one large tooth flanked by smaller tooth on each side, retromargin with two teeth. Maxillae rhomboidal with long truncate apical ectal edge and basal ental edge, no groove or depression. Labium wider than long. Sternum widely cordate, strong intercoxal triangles, all margins slightly elevated or thickened as in *Creugas*, wide central depression. Legs: coxal bases with small basal processes anteriorly and larger ones posteriorly; coxae IV about twice as large as I. RCH small, distinct. Femora IV and less so III with distal constriction. Tibiae I and II (male) aspinose. Scopula absent; ventral tarsi sparsely setose. Feathery hairs on all segments but tarsi. Claw tufts dense, high, enclosed claws. Trichobothria: two lines of few on tarsi parted by setal band; one straight sparse (*ca*. 6) line on retrodorsal metatarsi; 3–4 basally on tibiae. Abdomen with curved dorsal scute (male, Fig. 37a) for full length of abdomen, ventral scutes (Fig. 37d) over genital area with short anterior collar and wide post-epigastric sclerites, main central area enclosing tracheal spiracle cover. Colulus absent. ALS *ca*. twice size of PLS. Palp: (male) tibia without RTA but deep transverse ventral groove (Fig. 38a); cymbium short with narrow margins and short apical cone; dorsoapically with scopula and pallid unsclerotised zone with two pseudoclaw hairs; retrobasally with small lobular paracymbial spine (Fig. 38a); bulb large, pyriform basally with broad predistal keel to corkscrew embolus, subtegulum large. Epigyne (Fig. 38e–h): paired procurved crescents, narrow CD across to ental edge of large head of spermathecae, with small accessory lobe and narrow distal base before FD.

Distribution. Known only from south-eastern Queensland.

***Disnyssus helenmirrenae* sp. nov.**
(Figs 1b, 16a, 37b–d, 38a, b, e, f. Map 18)

Material. **Queensland**: holotype ♂, Taroom District, Boggomoss (No.19), 25°25'S 150°01'E, pitfall, 11 Nov 1996–Jan 1997, G. Monteith, D. Cook, QM S34648. Paratypes: **Queensland**: 1♀, "Stockhaven", 3 km SE, 25°48'S, 151°59'E, rainforest, pitfall, 19 Dec 1998–25 Jan 1999, G. Monteith, C. Gough, QM S50046; 1♀, same data but 10 Oct–19 Dec 1998, QM S50068. Boggomoss via Taroom, 25°26'S, 150°01'E, open forest, pitfall, P. Lawless: 1♂, adjacent to No. 3, (BS 55), 12 Jun–9 Sep 1996, QM S37136; 2♂ 1♀, No. 3, 11 Nov 1996–12 Jan 1997, QM S37178, QM S37173; 1♂, No. 4 (near), 11 Nov 1996–12 Jan 1997, P. Lawless, H. Janetzki, D. Cook, QM S37252. 1♀, Braemar SF, 27°13'S, 150°50'E, cypress & brigalow, 4–8 Feb 1980, R. Raven & Qld Museum, QM S39424; 1♂, same data but 15–19 Oct 1979, QM S39423; 1♀, Buhot Ck, Burbank (BCC1), 27°35'S, 153°10'E, riparian, pitfall, 2–29 Jan 2004, QMP, QM S79650; 1♀, Coalstoun township, 0.5 km E, 25°37'S, 151°53'E, scrub remnant, berlesate, 28 Jan 1999, G. Thompson, QM S50033; 1♀, Corry HS, 2 km SW, Retro–Corry Rd, 22°45'S, 147°59'E, road verge, pitfall, 12 Jan–9 Mar 2006, C.J. Burwell, QM S72656; 1♂, Expedition Ra NP, Amphitheatre yards, 25°13'S, 149°01'E, open forest, pitfall, 27 Sep–19 Dec 1997, G. Monteith, D. Cook, QM S31653; 1♀, Fraser I: Orchid Beach, Stirling Castle Drive, 25°29'S, 153°03'E, pitfall, Feb 2000, R. Raven, P. Lawless, QM S55936. Lake Broadwater via Dalby, 27°21'S, 151°06'E: 1♀, 27 Jan 2002, R. Raven, B. Baehr, N. Platnick, QM S55911; 1♂ 1♀, pitfall, 24 Nov 1985–3 Jan 1986, QMP & M. Bennie, QM S50480; 1♀, pitfall, 26 Jan–18 Feb 1985, QMP & M. Bennie, QM S50456; 1♂ 1♀, pitfall, 3 Jan–25 Feb 1986, QM S50473; 1♀, pitfall, 18 Feb–25 Mar 1985, QM S50472; 1♀, pitfall, 25 Feb–22 Apr 1986, QMP & M. Bennie, QM S50479; 1♂ 1♀, pitfall, 16 May–23 Nov 1985, QM S50453; 1♀, (Site 2), pitfall, 25 Feb–22 Apr 1986, QMP & M. Bennie, QM S50438; 1♂ 1♀, (Site 2), pitfall, 3 Jan–25 Feb 1986, QMP & M. Bennie, QM S50434; 1♀, (Site 2), 22 Apr–12 Jun 1986, QMP & M. Bennie, QM S50427; 1♂ 1♀, (Site 2), pitfall, 24 Nov 1985–3 Jan 1986, QMP & M. Bennie, QM S50436; 1♀, (site 8), pitfall, 3 Jan–25 Feb 1986, QMP & M. Bennie, QM S39421; 1♂, (Site 2), pitfall, 19 Feb–26 Mar 1985, QMP & M. Bennie, QM S50442. 1♀, Lords Table plateau, site 1, 22°39'S, 148°01'E, open eucalypt forest, litter, 7 Mar 2006, R. Raven, QM S80333; 1♀, Lords Table, SE base, 22°40'S 148°01'E, eucalypt woodland, 9 Jan 2006, R.J. Raven, QM S80168; 1♂, Mt Hutton, 8.5 km SW, 26°01'S, 148°16'E, softwood scrub, pitfall, 14 Dec 2001–8 Mar 2002, G. Monteith, D. Cook, QM S79636. 2♂, Mt Rose via Taroom, 25°25'S, 149°58'E, vine scrub, pitfall, 23 Sep 1997–15 Dec 1997, D.J. Cook, QM S44503, QM S44366; 1♂ 1♀, Mudlo Gap, bottom, 26°01'S, 152°14'E, rainforest, pitfall, 9 Oct–17 Dec 1998, G. Monteith, C. Gough, QM S50424, QM S50100; 1♂, Saddletree Ck, Bunya Mtns, 26°51'S, 151°38'E, rainforest, flight intercept trap, 1 Dec 1991–7 Jan 1992, D.J. Cook, QM S56136; Taroom district, Boggomoss, 25°25–28'S, 149°58'–150°02'E: 1♂, (BS 24), Rock Wallaby Hill, vine thicket, pitfall, 12 Nov 1996–

12 Jan 1997, P. Lawless, QM S50880; 1♂, (BS 24) Mt Rose Stn, vine thicket, pitfall, 17 Jun–10 Sep 1996, P. Lawless, QM S36757; 1♂, (no.13, BS 20), pitfall, 11 Nov 1996–12 Jan 1997, P. Lawless, QM S37143; 1♂, (No.3), pitfall, 12 Nov 1996–12 Jan 1997, G. Monteith, D. Cook, QM S39551; allotype ♀, 1♂1♀ (No.3), pitfall, 12 Nov 1996–12 Jan 1997, G. Monteith, D. Cook, QM S36358, QM S43701, QM S39542; 2♂ 1♀, same data but baited flight trap, QM S36283, QM S36316; 2♂, same data but (No 8), pitfall, QM S36302; 1♂, same data but pitfall, 11 Nov 1996–12 Jan 1997, P. Lawless, QM S36739, QM S36666.

FIGURE 39. *Iridonyssus kohouti* sp. nov., female: habitus (Photo: J. Wright, QM).

Diagnosis. Differs from *D. judidenchae* sp. nov. in having finely pustulose cuticle on the carapace, the longer, more slender serrate setae on the fang shield of females, and in having two pairs of spines ventrally on tibiae III; females also have shorter spermathecae and stronger spination on tibiae and metatarsi.

Etymology. The species is named after actress, Dame Helen Mirren**.**

Description holotype male QM S34648

Carapace 2.52 long, 1.96 wide. Abdomen 2.52 long, 1.76 wide. Total length 5.0.

Colour: carapace and abdomen dark brown; femur dark reddish brown with narrow brown basal band and wide subapical brown band, patellae red brown with dark brown distal lateral faces, tibiae–tarsi I and II, metatarsi III and tarsi III and IV orange brown, metatarsi IV red brown; abdomen dark brown with white feathery hairs in anterior band and pair of narrow medial bands, two pallid spots subdistally on abdomen; carapace dark brown with sparse wide band of white feathery hairs marginally.Carapace pear-shaped, steep-sided laterally and posteriorly, wide tear-shaped flat plateau around fovea; white feathery hairs sparse in wide marginal band and onto dorsal abdomen; fovea short, deep; caput low, indistinct striae; cuticle finely pustulose. Legs: IV much thicker and longer than I; all femora with strong postbasal dorsal thickening depth; cluster of thick hairs ventrally on distal metatarsi and tarsi III and IV. Spines: weak on I and II, strong on III and IV. I: fe p1d2 all weak; pa 0; ti 0; me v2.2. II: fe p1d2w; pa 0; ti

v1w; me v2.2w. III: fe p2d3r1; pa 0; ti p2r2v0.2.2; me p2r2v2.2.1. IV: fe p3d3r1; pa 0; ti p2r2v2.2.2; me p3r3v2.2.2. Palp: fe d2; abdomen: from above, dorsal abdominal scute extends forward in U-shaped collar. Palp: paracymbial spine set very close to basal margin; embolus tip spiralled.

Female allotype QM S35638

Carapace 2.28 long, 1.72 wide. Abdomen 2.72 long, 2.20 wide. Total length 5.0.

Colour: carapace and chelicerae dark brown; legs, all femora brown, patellae–tarsi I and II brown orange, III and IV red brown; abdomen dorsally brown with small equilateral triangular dorsal scute, shiny brown; ventrally dark brown. Carapace: glabrous save for erect bristles; one on each strial ridge and pair beside anterior lateral fovea; two anteromedially, 6–8 on clypeus; cuticle finely coriaceous; striae shallow grooves. Eyes: lateral eyes clearly larger; both rows recurved. Chelicerae: slightly porrect, with face recurved back to fangs; fang and furrow short, with long slender fang setae; dentition 2 + 2. Sternum without strong intercoxal projection, margins with long curved setae, centrally glabrous, labium subquadrate. Legs: RCH small; trochanters very shallowly notched; feathery hairs on femora and tibiae III, IV, not evident elsewhere. Scopula sparse on tarsi I, II. Cluster of thick black hairs ventrally on metatarsi III, IV. Spines: weak on I, II. I: fe p1d2; pa 0; ti v1.0; me v2.2.0. II: fe d1; pa 0; ti v1.0; me v2.2. III: fe p2d3r1; pa 0; ti p2r2v1.2.2; me p2r2v2.1.3. IV: fe d3r1; pa 0; ti p2r2v1.2.2; me p3r3v2.1.3. Palp: fe d2; pa p1; ti p2 ta p2v1. Palp: claw slender, apically curved, dentate, not obscured; palpal tarsus without dense hair clusters. Spinnerets: 3 large cylindrical gland spigots on PMS and 2 large CGS on PLS. Epigyne: paired procurved crescents, narrow CD across to ental edge of long domed head of spermathecae, ducts distally not extending wider past base of spermathecae.

Distribution and Habitat. Known only from open forests in the Taroom district and xeric areas to the west of the Great Dividing Range as well as Buhot Reserve and Fraser Island east of the Range, south-eastern Queensland.

***Disnyssus judidenchae* sp. nov.**
(Figs 37a, 38 c, d, g, h. Map 19)

Material. **Queensland**: holotype ♂, Upper Brookfield, 27°30'S, 152°55'E, rainforest, pitfall, 5 Oct 1981, V. Davies, R. Raven, QM S29523. Paratypes: **Queensland**: 1♀, Blackbutt Ra, 5 km E Benarkin, 26°52'S 152°11'E, rainforest, sieved litter, 30 Mar 1983, G. Thompson, J. Gallon, QM S29498; 1♂, Fraser Island, Orchid Beach (F04), 24°57'S, 153°19'E, heathland, pitfall, 20 Aug–17 Dec 1997, R. Raven, P. Lawless, QM S41753; 1♂ 1♀, Mt Coottha, Brisbane, 27°29'S, 152°57'E, open forest, pitfall, 17 Dec 1996, R.J. Raven, QM S41170; 1♀, Mt Deongwar, 3 km S (site 2), 27°14'S, 152°15'E, rainforest, pitfall, 30 Dec 1998–26 Mar 1999, G. Monteith, QM S50082; 1♂, Mt Glorious (Hiller HS), 27°20'S, 152°46'E, rainforest, *Argyrodendron actinophyllum* sampling, malaise trap, 25–30 Oct 1987, Y. Basset, QM S5372; 1♂, Mt Nebo, 27°23'S, 152°47'E, pitfall, Dec 1978, A. Rozefelds, QM S29568; 1♂ 1♀, Mt Nebo, 27°23'S, 152°47'E, pitfall, August–11 Sep 1978, A. Rozefelds, QM S29414; 1♂, Mudlo Gap, bottom, 26°10'S, 152°14'E, rainforest, pitfall, 20 Aug–9 Oct 1998, G. Monteith, QM S50087; 1♀, Redland, Hilliards Ck, near South St (RHC1), 27°33'S, 153°14'E, scribbly gum, open forest, pitfall, 21 Nov–19 Dec 2008, QMP and BAAM, QM S86914; 1♀, Saddletree Ck, Bunya Mtns, 26°51'S, 151°38'E, rainforest, pitfall, 7 Jan–1 Mar 1992, D.J. Cook, QM S40918. Upper Brookfield, 27°30'S, 152°55'E, complex notophyll vine forest with *Araucaria*, litter or pitfall, V. Davies, R. Raven: 1♂ 1♀, 30 Oct 1980, QM S29421; 1♂ 1♀, 30 Oct 1980, QM S43690; 1♂ 1♀, 5 Nov–4 Dec 1981, QM S29506; 1♂, early Jul 81–12 Jan 1982, R. Raven, QM S29395; allotype 1♀, 31 Jul 1981, QM S39420; 1♂ 1♀, night, 22 Dec 1980, QM S29396. 2♂, Yarraman, 3 km E, 26°50'S, 152°03'E, rainforest, pitfall, 10 Nov 1974–11 Jan 1975, G. & S. Monteith, QM S12200, QM S39422.

Diagnosis. Differs from *D. helenmirrenae* sp. nov. in having enlarged pustules on the carapace, and in the unusual spination ventrally on tibiae III. Females also have longer spermathecae, short thick spine-like serrate setae on the fang shield, and weaker spination on the tibiae and metatarsi.

Etymology. The species is named in honour of actress, Dame Judi Dench.

Description holotype male QM S29523. As *D. helenmirrenae* except:

Carapace 2.12 long, 1.60 wide. Abdomen 2.28 long, 1.60 wide. Total length 4.4.

Colour: carapace brown with light cover of broad white hairs. Coxae all yellowish; femora brown with yellowish basal half; patellae-tarsi I and II yellowish, III and IV orange brown; abdomen dorsal dark red brown scute with two pairs of pallid transverse bands also bearing white hairs, and pair of pallid spots posteriorly; genital

and ventral scute orange brown; laterally abdomen black with three pallid marks. Carapace: margin smooth; distinct pustules in donut-shaped zone of thorax around fovea. Chelicerae: with 3–4 short thick serrate setae on fang shield. Legs: white and black feathery hairs on femora and tibiae. Shallow notches on trochanters IV. Spines: weak on tibiae and metatarsi I and II. I: fe p1d2; ti 0; me v2.2(w). II: fe d2; ti v0.1; me v2.2(w). III: fe p2d3r1; ti p2r2v1.2; me p2r2v2. IV: fe p2d3r1; ti p2r2v1.2.2; me p3r3v2.2.3. Palp: fe p1d2. Tibiae III with enlarged megaspine centroventrally; two basal spines ventrally on metatarsi III short, thorn-like. Palp: paracymbial spine clearly subbasal; embolus tip twisted; cymbium with weak dorsal scopula and two thick setae apically. Abdomen: petiolar collar short; entral scute with convex edges and converges from base.

Female allotype QM S39420, like ♂ except:

Carapace 1.72 long, 1.35 wide. Abdomen 1.95 long, 1.48 wide. Total, 4.1.

Colour: carapace brown, few white hairs on slope and black bristles; abdomen dorsally mottled brown, broad trianguloid almost glabrous scute for one-fifth, behind that two large pairs of pallid sigilla, back pair in broken field of white, transverse slender pallid bars, laterally with pallid longitudinal grooves, ventrally light brown with two paler longitudinal bars centrally. Carapace: dark shallow cordate depression in front of fovea along anteromedial ridge. Chelicerae with 3–4 thick black tapering fang setae; dentition 2R, 3P. Sternum with domed edges, with shallow but wide medial and radial grooves. Epigyne: two small spiral-ridged fossae set wide (*ca.* 3–4 diameters apart) lead to short recurved copulatory ducts to large head of spermathecae, folding to narrow dorsal and slightly enlarged basal spermathecae. Abdomen: tracheal scute subquadrate with *ca*. 20 short thick black setae.

Distribution and Habitat. Known only from rainforests in south-eastern Queensland.

Iridonyssus gen. nov.

Diagnosis. Resembles *Nyssus* but differs in that the eyes are the most anterior point of the carapace and on the vertical face of the clypeus (Fig. 1d), not set back as in other genera, flatter cephalothorax and closed post-epigastric sclerites (Fig. 40c) and steep posterior slope of carapace (Fig. 1d). *Iridonyssus* is readily differed from other Australian corinnids by the pustulose iridescent carapace (Figs 39, 40a, 42a) and from *Poecilipta* in the relatively wider carapace and much shorter legs.

Etymology: a combination of iridescent and *Nyssus*. The gender is masculine.

Type species: *Iridonyssus kohouti* sp. nov.

Description. Carapace and abdomen heavily sclerotised, pustulose and iridescent but for large white feathery scales laterally. Carapace steep-sided behind and in eye region. Lateral profile of carapace (Fig. 1d): low and flat or slightly arched for its length but sloping downward to eyes from steep posterior declivity; eyes set behind clypeus edge. Retrolateral face of small chelicerae smooth (Fig. 40b). Abdomen (female, Fig. 40a) with heavy dorsal scute extending down lateral face and close to but separated from genital and ventral scutes. Eyes in two rows (Fig. 40b); all of similar size; front row recurved, back row procurved (Fig. 44d). Spines: tibia I v2.2; me v2.2, all weak. Tracheal spiracle a transverse slit with low anterior mound, in males often fused to ventral scute (Fig. 42b) or long ovoid in females (Fig. 40d). RCH a pinhole. Palp: cymbium lacks paracymbial spine (Fig. 41a); bulb typical of Castianeirinae, with twisted embolic apex. Scopula absent; claw tufts well developed. Chelicerae small with short fangs, with line of long serrate setae on fang mound (Figs 4d, e, 40b) of females. Large thick setae in front of fang. Male chelicerae without modified setae. Sternum pustulose (Fig. 42c). Femora III and IV with strong ventral distal constriction (Fig. 42d). Female with ventral scute reduced to tracheal shield (Fig. 40d); genital shield forms a short collar (Fig. 40c); full dorsal shield coloured and pitted; paragenital brackets present (Fig. 40d). Epigyne (Fig. 40c) heavily sclerotised; two basal ovoid pits leading forward to large receptacle and then back.

Species included: *Iridonyssus auripilosus* sp. nov., *I. formicans* sp. nov., *I. kohouti* sp. nov. and *I. leucostaurus* sp. nov.

Distribution. Eastern Australia.

Key to species of Iridonyssus

1. Carapace and abdomen with iridescent peacock green sheen (Figs 39, 40a) . . . . . *I. kohouti*
   Carapace and abdomen not as above. 2
2(1). Broad golden scales covering carapace lightly and dorsal scute densely (Fig. 42a)…*I. auripilosus*
   No such scales 3
3(2). Radial lines of pallid hair on interstrial ridges of carapace (Fig. 47a) . . . . . *I. leucostaurus*
   Carapace without hair (Fig. 44a, b, d). . . . . *I. formicans*

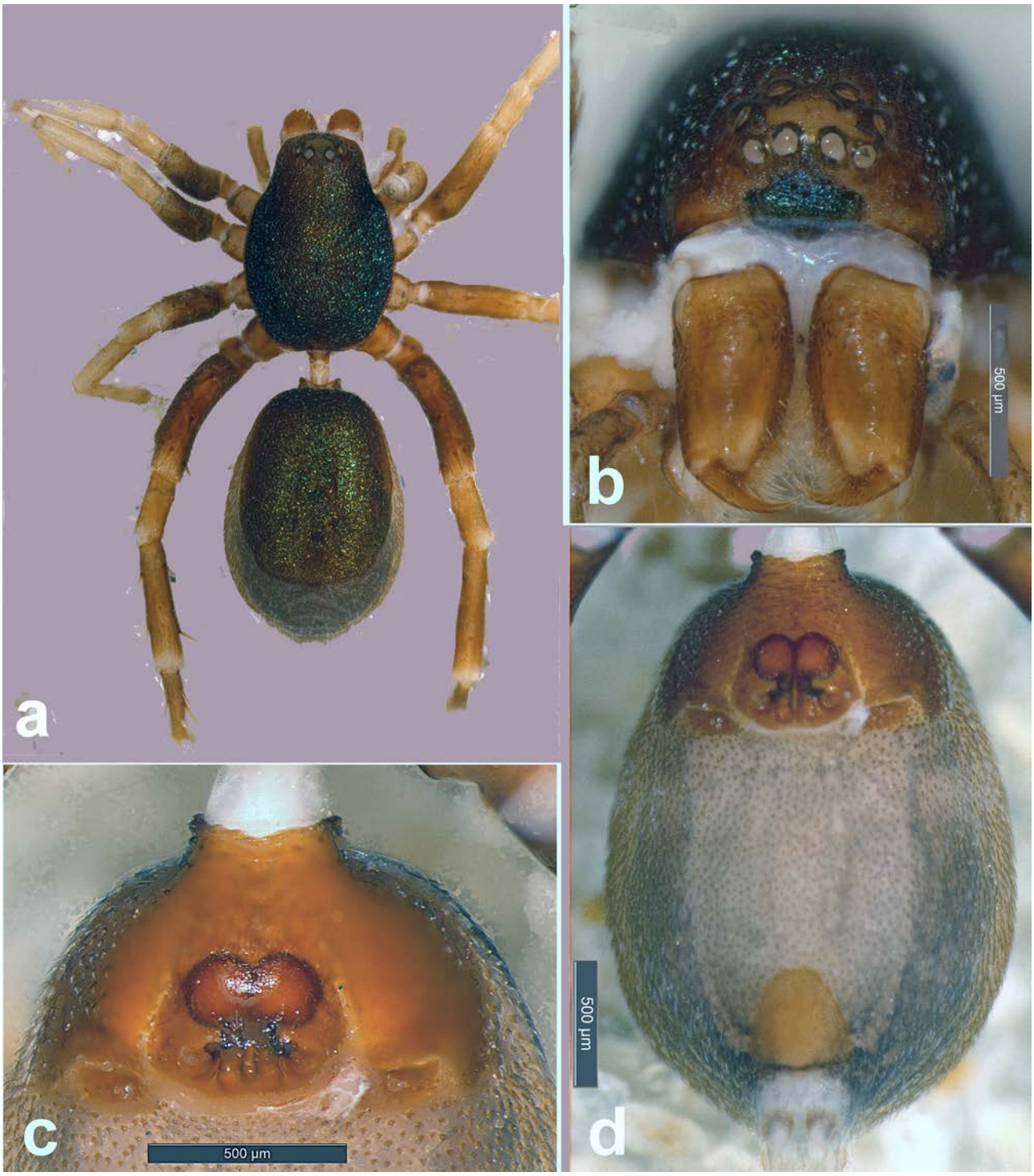
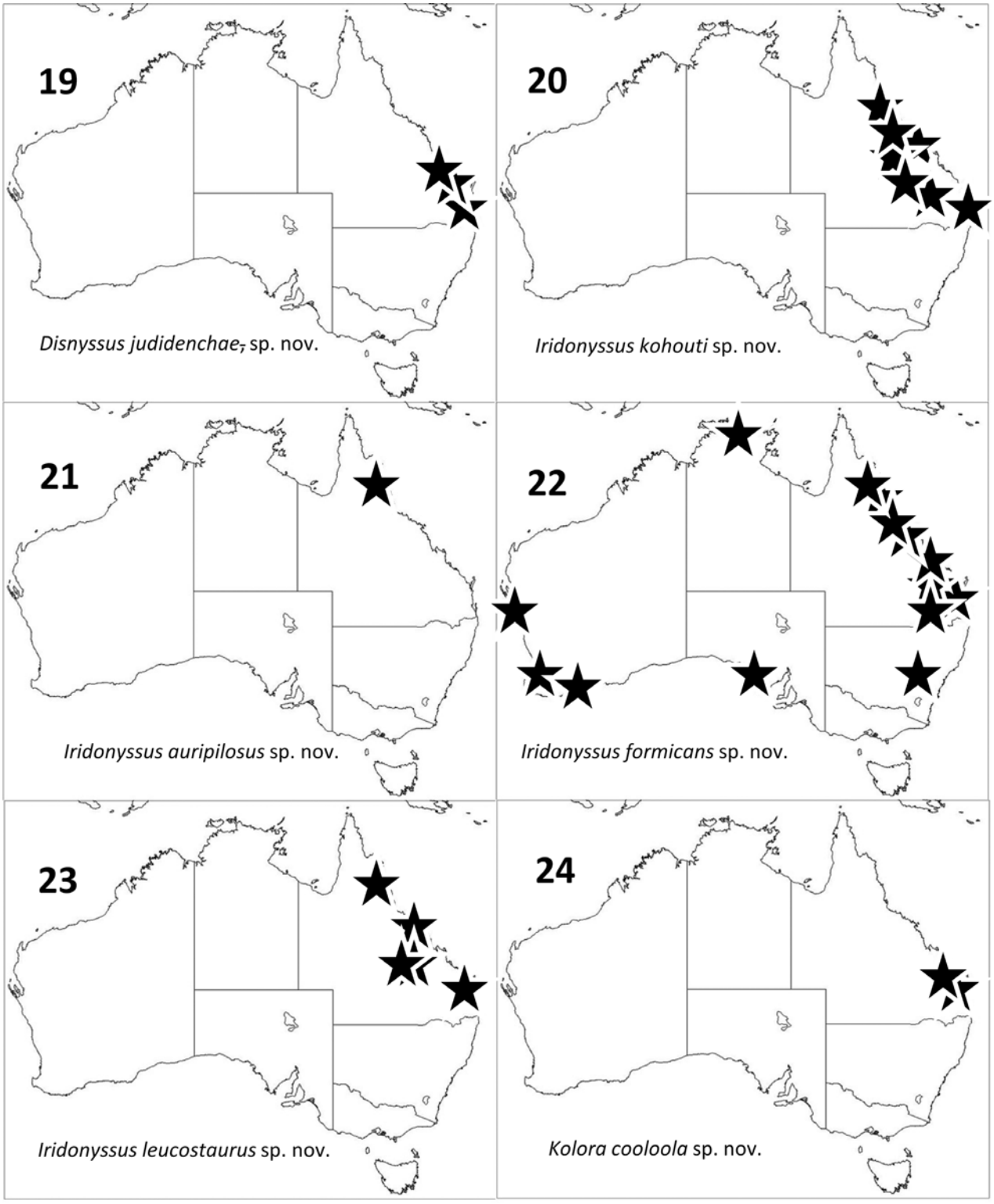


FIGURE 40. *Iridonyssus kohouti* sp. nov., female, QM S50051: a, habitus; b, chelicerae, frontal view showing small chelicerae and fang mound; c, epigastric scute, epigyne and separate post-epigastric sclerites, ventral view; abdomen, ventral view.



MAPS 19–24. Records of Australian species of *Disnyssus* gen. nov., *Iridonyssus* gen. nov. and *Kolora* gen. nov.

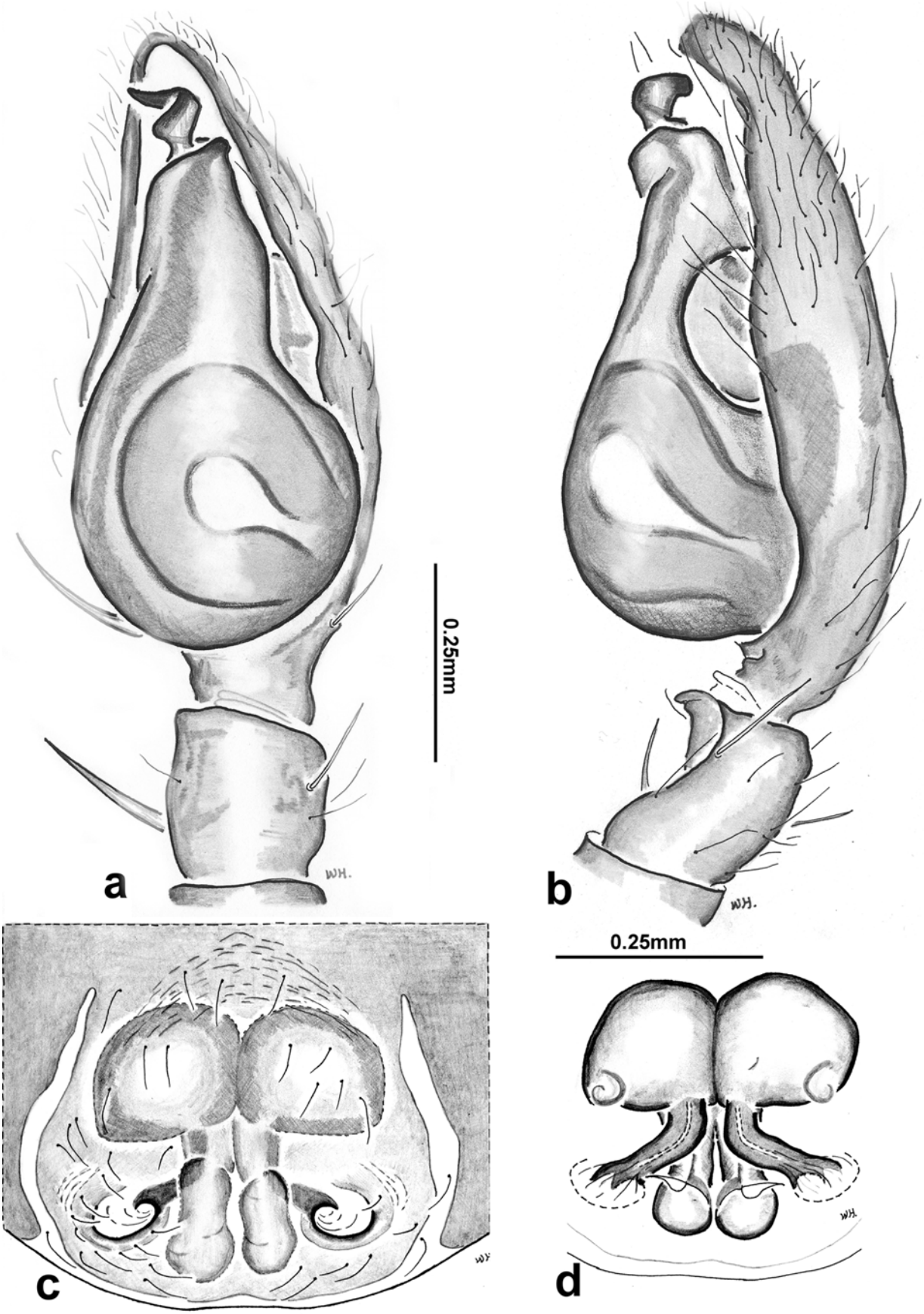


FIGURE 41. *Iridonyssus kohouti* sp. nov., a–d. Holotype male, QM S31548, palpal tibia, bulb and cymbium, a, b: ventral view (a), and retrolateral view (b). Female allotype, QM S3264, c, d: epigyne, external (c), and internal (d).

***Iridonyssus kohouti* sp. nov.**
(Figs 1d, 4d, e, 6d, 7d, 39; 40a–d, 41a–d. Map 20)

Material. **Queensland**: holotype ♂, Homevale, 21°24'S, 148°33'E, sclerophyll by creek, 6 Apr 1975, R. Kohout, QM S31548. Paratypes: **Queensland**: 1♂ 1♀, Separation Station, via Duaringa, 23°35'S, 149°47'E, pitfall, 12 Jun 1994, D. Wallace, J. Smith, QM S32644, QM S32632; 1♂, Binjour Plateau, Redvale Rd, 25°33'S, 151°28'E, open forest, pitfall, 23 Sep 1997–21 Dec 1997, G. Monteith, D. Cook, QM S44476; 1♀, Boat Mt Environmental Park, summit, 26°09'S, 151°59'E, open forest, pitfall, 26 Jan–20 Apr 1995, G. Monteith, QM S50404; 1♂, Boggomoss No 4 (near), Taroom, 25°26'S, 150°01'E, pitfall, 11 Nov 1996–12 Jan 1997, P. Lawless, H. Janetzki, D. Cook, QM S37251; 1♂, Bondoola (DW6, Stonier), 23°11'S, 150°41'E, open forest, pitfall, 23 Oct 1990–22 Mar 1991, D. Wallace, R. Raven, QM S19688; 1♂, same locality, 22 Mar 1990, D. Wallace, R. Raven, K. Williams, QM S39544; 1♂, Brigalow Res Stn (site 5), 24°48'S, 149°45'E, softwood scrub, pitfall, 29 Oct–16 Dec 2000, D. Cook, G. Monteith, QM S56390; 1♂ 1♀, Brigalow Res Stn (site 5), 24°48'S, 149°45'E, softwood scrub, pitfall, 16 Dec 2000–28 Mar 2001, D. Cook, G. Monteith, QM S56385; 1♀, Bushley Stn (DW12), 23°32'S 150°15'E, open forest, pitfall, 21 Mar–22 Oct 1990, D. Wallace, R. Raven, K. Williams, QM S39543; 1♀, Dalrymple NP, 1.6 km from locked gate, 19°49'S, 146°05'E, open forest, pitfall, 28 Sep–13 Dec 2006, R. Raven, A. Amey, B. Baehr, QM S79062; 1♀, Enterprise Mine, Blackbutt #2, 27°33'S, 153°27'E, blackbutt, 9 Jan 2002, QMP, QM S55479; 1♂ 1♀, Enterprise Mine, Scribbly Gum #2, 27°36'S, 153°27'E, scrubby gully, 10 Jan 2002, QMP, QM S55987; 1♂, Expedition Ra NP, Amphitheatre yards, 25°13'S, 149°01'E, open forest, pitfall, 27 Sep–19 Dec 1997, G. Monteith, D. Cook, QM S44256; 1♀, Frenchville, 23°20'S, 150°24'E, open forest, pitfall, D. Wallace, R. Raven, K. Williams, QM S22143; 1♂, Frenchville (DW10), 23°20'S, 150°34'E, open forest, pitfall, 21 Mar 1991, D. Wallace, R. Raven, K. Williams, QM S43695; 1♂, Gayndah, Hospital Hill, 25°38'S, 151°36'E, vine scrub remnant, pitfall, 25 Jan–7 Jun 1999, G. Monteith, G. Thompson, QM S60901; 2♀, Mt Gayndah, 25°36'S, 151°32'E, grassland, 21–23 Nov 1998, R.J. Raven, QM S60771, QM S60770; 1♂, same locality, open forest, pitfall, 18 Dec 1998–27 Jan 1999, G. Monteith, C. Gough, QM S49984; 1♂, Gold Creek Reservoir (BCC1), 27°28'S, 152°52'E, spotted gum, pitfall, 30 Jun–28 Jul 2003, S. Wright, E. Volschenk, QM S62800; 1♂, Homevale, 21°24'S, 148°33'E, sclerophyll by creek, 6 Apr 1975, R. Kohout, QM S31549; 1♂, Humphery Racetrack, 25°38'S, 151°30'E, open forest, pitfall, 18 Dec 1998–27 Jan 1999, G. Monteith, C. Gough, QM S52259; 2♂ 2♀, same data but, 11 Oct–18 Dec 1998, QM S50045, QM S51307; 2♂, same data but, 27 Jan–2 Jun 1999, G. Monteith, G. Thompson, QM S51351, QM S60902; 1♂, Hurdle Gully, 14.8 km WSW Monto, 24°55'S, 150°59'E, open forest, pitfall, 20 Dec 1997–26 Apr 1998, G. Monteith, QM S60105; 1♂ 1♀, Ipswich: Kholo, Coal Ck, 27°34'S, 152°44'E, open forest, pitfall, 13 Jan–16 May 1999, G. Monteith, QM S52261; 1♀, Ipswich: Redbank Plains, 27°39'S, 152°51'E, 8 Mar 1998, M. Rix, QM S55394; 1♀, Isla Gorge Lookout, 3.6 km NE, 25°10'S, 150°00'E, vine scrub, pitfall, 21 Sep–15 Dec 1997, G. Monteith, D. Cook, QM S44462; 2♂ 2♀, Isla Gorge NP, NE corner, 25°10'S, 150°01'E, vine scrub, pitfall, 22 Sep–15 Dec 1997, G. Monteith, D. Cook, QM S44398, QM S44529; 1♀, Keysland, 26°12'S, 151°44'E, open forest, pitfall, 5 Dec 1994–26 Jan 1995, G. Monteith, QM S27986. Lake Broadwater (Site 1), 27°21'S, 151°06'E, pitfall, QMP & M. Bennie: 11♂, 16 May–23 Nov 1985, QM S50466; 1♂ 1♀, 25 Feb–22 Apr 1986, QM S50454; 1♀, 25 Mar–16 May 1985, QM S50459; 16 ♂ 1♀, 24 Nov 1985–3 Jan 1986, QM S50470; 1♂ 1♀, 26 Jan–18 Feb 1985, QM S50458; 1♂ 1♀, 3 Jan–25 Feb 1986, QM S50460; 1♂ 1♀, (Site 2), 24 Nov 1985–3 Jan 1986, QM S50440; 1♀, (Site 2), 22 Apr–12 Jun 1986, QM S50430; 1♂ 1♀, (Site 2), 26 Jan–19 Feb 1985, QM S50444; 1♂ 1♀, (Site 2), 3 Jan–25 Feb 1986, QM S50433; 1♂ 1♀ 1j, Site 2, 17 May–24 Nov 1985, QM S50437; 1♀, Site 2, 19 Feb–26 Mar 1985, QM S50439; 1♂, Lake Murphy Conserve Park, 25°59'S, 149°40'E, open forest, dung pitfalls, & intercepts, 4–5 Mar 1998, D. Cook, L. Hugo, QM S44385; 1♂, Lords Table plateau, site 1, 22°39'S, 148°01'E, eucalypt woodland, dung trap, 10 Jan–7 Mar 2006, C.J. Burwell, QM S80278; 1♂, Lords Table, SE base, 22°40'S, 148°01'E, eucalypt woodland, pitfall, 9 Jan–4 Mar 2006, R.J. Raven, QM S80084; 1♀, Marlborough, 10.7 km NNW, 22°43'S, 149°51'E, semi-evergreen vine thicket, pitfall, 19 Dec 2000–24 Mar 2001, D. Cook, G. Monteith, QM S60634; 1♀, Moranbah, 5 km S, 22°02'S, 148°03'E, scrub, pitfall, 25 Jun 1997–20 Dec 1997, G. Monteith, E. Kruck, QM S44479; 1♀, Moreton I, 27°11'S, 153°24'E, 29 Nov 1978, T. Tebble, V. Davies, QM S29418; 1♂ 1♀, Mt Bassett, 3 km NNE, 26°25'S, 148°54'E, softwood scrub, pitfall, 13 Dec 2001–5 Mar 2002, G. Monteith, D. Cook, QM S79683; 1♂, Mt Chalmers (Hollins), 23°18'S 150°38'E, pitfall, D. Wallace, QM S22183; 1♂, Mt Deongwar, 3 km S (site 1), 27°14'S, 152°15'E, wet sclerophyll, pitfall, 14 Oct–30 Dec 1998, G. Monteith, D. Cook, QM S50102; 1♀, Mt Gavial, 1 km S, 23°36'S, 150°29'E, open forest, pitfall, 17 Dec 1998–14 Mar 1999, D. Cook,

QM S50051; 1♀, Mt Gayndah, summit, 25°36'S, 151°32'E, open forest, pitfall, 9 Oct–19 Dec 1998, G. Monteith, C. Gough, QM S51361; 1♀, Mt Hutton, 8.5 km SW, 26°01'S, 148°16'E, softwood scrub, pitfall, 14 Dec 2001–8 Mar 2002, G. Monteith, D. Cook, QM S79638; 2♂ 1♀, Mt Rose via Taroom, 25°25'S, 149°58'E, vine scrub, pitfall, 23 Sep–15 Dec 1997, D. Cook, QM S44369, QM S31985; 1♂ 1♀, same data but 16 Dec 1997–4 Mar 1998, D. Cook, QM S44356; 1♀, same data but dung, pitfalls, & intercepts, 4–6 Mar 1998, D. Cook, L. Hugo, QM S44384; 1♀, same data but mixed scrub, pitfall, 12 Jul 1997–23 Sep 1997, D. Cook, QM S43012; Nipping Gully, open forest, pitfall: 1♂ 1♀, 25°40'S, 151°26'E, 25 Jan–2 Jun 1999, G. Monteith, G. Thompson, QM S52257; 1♂ 1♀, (Site 3), 25°41'S, 151°25'E, 9 Oct–18 Dec 1998, G. Monteith, C. Gough, QM S50049; 1♂, (Site 3), 25°41'S, 151°25'E, 21 Aug–9 Oct 1998, G. Monteith, QM S49959; 1♂, (Site 4), 25°40'S 151°26'E, 21 Aug–9 Oct 1998, G. Monteith, QM S51359; 1♂, (Site 6), 25°42'S, 151°26'E, flight intercept trap, 9 Oct–18 Dec 1998, G. Monteith, C. Gough, QM S51360; 1♂, (Site 6), 25°42'S, 151°26'E, 18 Dec 1998–25 Jan 1999, G. Monteith, C. Gough, QM S52264; 1♂, (Site 7), 25°41'S, 151°26'E, 18 Dec 1998–25 Jan 1999, G. Monteith, C. Gough, QM S52241; 1♂, Orchid Beach, Fraser I, 24°58'S, 153°19'E, heathland, pitfall, 7 Mar–1 Oct 1996, R.J. Raven, QM S31290; 1♂, Peawaddy Gorge Lookout, 2.6 km W, 24°54'S, 148°02'E, ironbark woodland, pitfall, 24 Aug 2001–21 Jan 2002, C. Eddie, R. Perry, G. Graham, QM S70922; 1♂, Proserpine, Airport Drive, site XY12, 20°29'S, 148°34'E, closed woodland, pitfall, 5 Nov 2007–13 Feb 2008, R.J. Raven, QM S85623; 1♂, Proserpine, track N off Airport Drive, site XY11, 20°29'S, 148°33'E, closed woodland, pitfall, 5 Nov 2007–13 Feb 2008, R.J. Raven, QM S85489; Taroom district, Boggomoss, pitfalls: 1♂, (no. 24), Rock Wallaby Hill, 25°25'S, 149°58'E, vine thicket, 12 Nov 1996–12 Jan 1997, P. Lawless, QM S37222; 1♂, (No.13, BS 20), 25°28'S, 150°02'E, pitfall, 11 Nov 1996–12 Jan 1997, P. Lawless, QM S37144; 1♂, (No.21), 25°27'S, 150°03'E, 11 Nov 1996–Jan 1997, G. Monteith, D. Cook, QM S36368; 1♂, (No.21), 25°27'S, 150°03'E, 10 Nov 1996–13 Jan 1997, P. Lawless, QM S36600; 1♂, Taroom District, Boggomoss (No.21), 25°27'S, 150°03'E, 11 Nov 1996–Jan 1997, G. Monteith, D. Cook, QM S36215; 1♂, (No.3), 25°26'S, 150°01'E, 12 Nov 1996–12 Jan 1997, G. Monteith, D. Cook, QM S36323; 1♂, (No.3), 25°26'S, 150°01'E, pitfall, 12 Nov 1996–12 Jan 1997, G. Monteith, D. Cook, QM S36359; 1♂ 1♀, No. 19, 25°25'S, 150°01'E, 11 Nov 1996–Jan 1997, D. Cook, G. Monteith, QM S36228; 1♂, No 8, 25°27'S, 150°02'E, pitfall, 12 Nov 1996–Jan 1997, G. Monteith, D. Cook, QM S39566; 1♂, Taroom-Cracow Rd, 25°33'S, 150°08'E, bottle tree vine thicket, 14 Nov 1996–13 Jan 1997, D.J. Cook, QM S36339; 1♂, (No.8), 25°27'S, 150°02'E, open forest, 11 Nov 1996–12 Jan 1997, P. Lawless, QM S36738; 1♂, No.3, near, 25°26'S, 150°01'E, 11 Nov 1996–12 Jan 1997, P. Lawless, QM S36629; 1♂, The Bluff, Keysland, 26°15'S, 151°43'E, vine scrub, pitfall, 24 Oct–24 Nov 1995, G. Monteith, QM S41631; 1♀, Tooloombah Ck, (NQ 41), 22°42'S, 149°34'E, eucalypt woodland, pitfall, 10 Nov 1991–29 Jul 1992, R. Raven, P. Lawless, M. Shaw, QM S24069; 1♂, W of Myola Stn on ridge, 20°04'S, 145°28'E, lancewood and fig, open forest, pitfall, 28 Sep–17 Dec 2006, R. Raven, A. Amey, B. Baehr, QM S79043; 1♂, Wetheron, 3 km SW, 25°34'S, 151°42'E, open forest, pitfall, 10 Oct–19 Dec 1998, G. Monteith, C. Gough, QM S50070; 1♂, Windermere, nr Glenmorgan, 27°17'S, 149°45'E, Dec 90–Sep 91, R. Raven, B.J. Smyth, QM S39537.

Diagnosis. Unusual in the iridescent peacock green sheen (Figs 39, 40a, b) on both the carapace and abdomen of males and females.

Etymology. The species epithet is in honour of ant taxonomist, Rudy Kohout, who collected some of material with ants and who, to 2013, has named 112 new species of ants.

Description holotype male QM S31548

Carapace 1.96 long, 1.40 wide. Abdomen 2.04 long, 1.44 wide. Total length 4.0.

Colour: carapace and abdomen dark brown with iridescent peacock green sheen; femora dark brown, patellae–tarsi progressively paler to yellow brown, sternum, coxae and ventral abdomen dark red brown, maxillae and labium brown. Carapace: highly pustulose, with large white feathery hairs laterally and several fine setae around eyes; steeply sloping sides rising to short straight fovea; posterior striae shallow, rest indistinct, clypeus almost vertical; shallow groove around lateral margins. Eyes: front row recurved, back strongly procurved; all of similar size. Chelicerae: small, vertical, with long but not thick setae over fang; two small close teeth on retromargin, one large and one smaller basal tooth on promargin. Labium: wider than long, inclined but flat. Maxillae: rhomboidal, with basal mound narrowing anteriorly, inner edge with short flat face. Sternum: pustulose setose, domed, indented opposite coxal bases; intercoxal triangles long between I/II and II/III, almost joining carapace between II/III. Legs: Trochanters III and IV with shallow notches, less evident on I and II. Scopula entirely absent. Viewed laterally, femur IV with sharply constricted predistal step; similar by less steeply demarcated on femur III. Large white feathery scales on femora. Scopula absent. Tibiae III and IV wider from base to about 2/3 length. Coxae IV much

the largest; all with basal triangular processes entally. RCH a pinhole. *ca*. 5 trichobothria in straight line on tarsi. Spines: I: fe p1d2; pa v1; ti v2.2.2; me v2.2; ta 0. II: fe d2; pa 0; ti pv1.1 rv1.0; me v2.2. III: fe p2d3r2; pa 0; ti p1r2v1.2.2; me p2r2v0.2.4 in distal whorl. IV: fe p2d3r2; pa 0; ti p2d1r2v1.2.2; me p3r3v1.2.4 in distal whorl. Palp fe p1d1; pa p1; ti p1. Palp: apically grooved; bulb: pyriform with narrowly twisted embolus, subtegulum evident prolaterally. Abdomen: dorsal scute pustulose, iridescent with large feathery scales, scute fused anteriorly to genital scute, extended forward over pedicel in collar, longer ventrally than dorsally; dorsal scute a full cap almost extending to ventral scute; ventral scute on extensive shield from genital scute to tracheal spiracle marked by transverse ridge and an anterior mound on ridge; genital scute without paragenital brackets but with large triangular `wings' over booklungs. Spinnerets: all small; ALS larger than PLS.

FIGURE 42. *Iridonyssus auripilosus* sp. nov., holotype male, QM S19785: a, habitus; b, abdomen, ventral view; c, sternum, ventral view; d, tibia IV, prolateral view.

Allotype Female QM S32644 as ♂ except as follows:

Carapace 1.94 long, 1.32 wide. Abdomen 2.25 long, 1.62 wide. Totally, 4.9.

Colour: carapace and brown with light green iridescence; dorsal scute similar, extends for 2/3 length, back edge convex, circular, posteriorly dark matt brown with tuft of white hairs above spinnerets; all femora and patellae & tibiae IV dark red brown; patellae–tarsi I–III light brown; distal tibiae IV pallid; genital & tracheal scutes dark red brown; abdomen ventrally otherwise light brown. Carapace: uniform cover of small pustules and white scale hairs; lateral margin lightly serrate. Steep posterior slope with fovea set in advance of edge. Legs: strong subdistal constriction of femur IV, less so on III. Light cover of white feathery and dense cover of black feathery hairs. Spines: I: fe p1d3r1; pa 0; ti v2.2.2; me v2.2. II: fe p1d2; pa 0; ti v.2.2; me v2.2. III: fe p2d3r2; ti p2r2v2.2.2; me p2r2v1.2.3. IV: fe p2d3r1; pa 0; ti p2d1r2v2.2.2; me p3r3v1.2.3. Palp fe p1d2; pa p1; ti p2; ta p2r1. Abdomen: dorsal scute in anterior 3/5 with low pustules and light cover of white scales. No pallid region laterally. Post-epigastric sclerites separated, long, narrow. Tracheal scute roundly long, triangular. Epigyne: with paragenital brackets, subquadrate with subdistal copulatory fossae passing dorsally and leading anteriorly to large short bursa with small lobe on retroventral corner and folding back to smaller spermathecae.

Distribution and Habitat. Widespread in open forest of eastern Queensland, south of Bowen.

Remarks. Males and females from Isla Gorge, Expedition Range show less emerald green in the abdomen and to some extent also in the carapace. A male from Binjour Plateau has green brown iridescent carapace and brown abdomen.

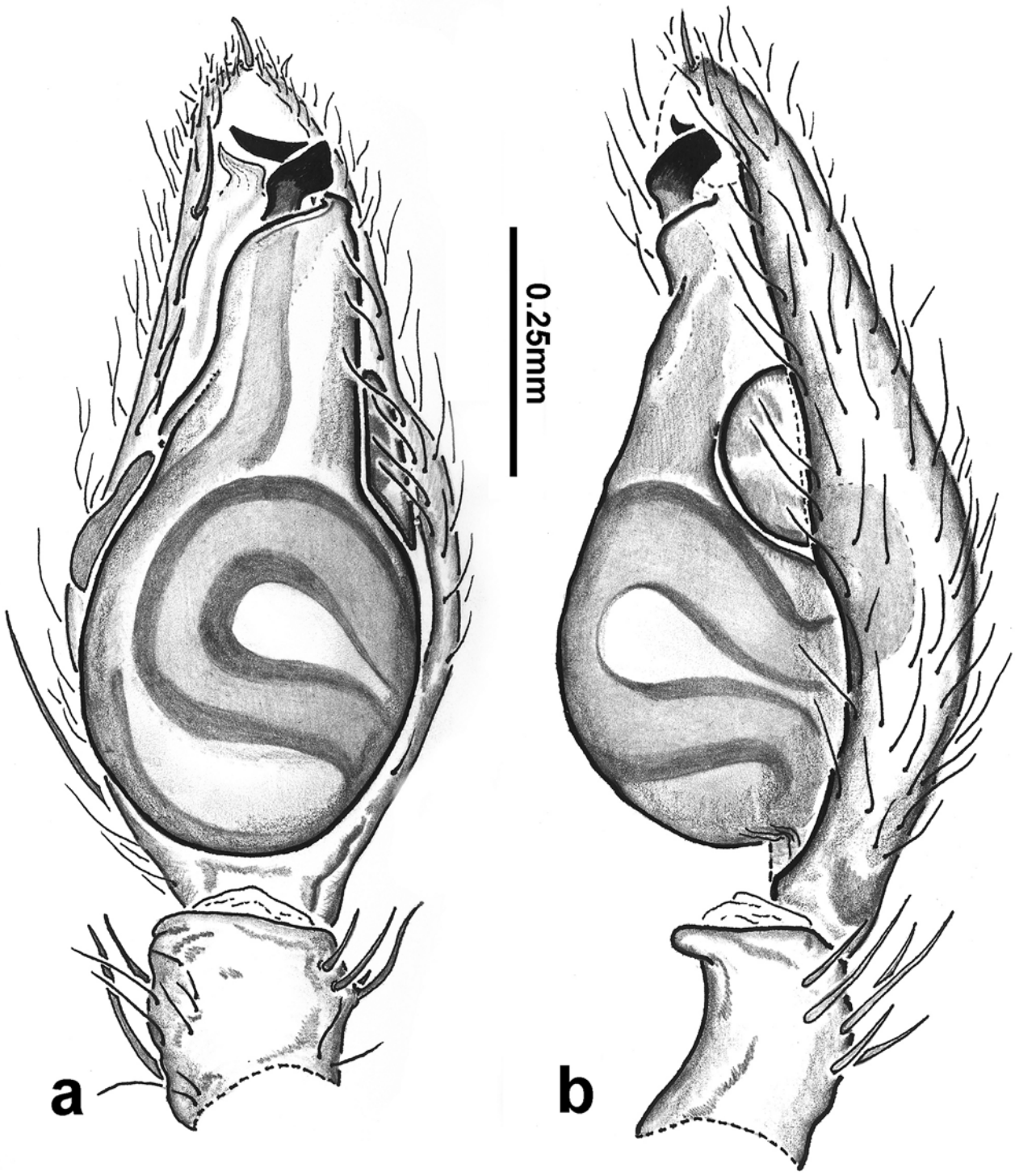


FIGURE 43. *Iridonyssus auripilosus* sp. nov., holotype male, QM S19785: palpal tibia, bulb and cymbium, ventral view (a), and retrolateral view (b).

***Iridonyssus auripilosus* sp. nov.**
(Figs 42a–d, 43 a, b. Map 21)

Material. Queensland: holotype ♂, Davies Creek NP, 17°00'S, 145°33'E, pitfall, 26 Nov 1992–15 Apr 1993, R.J. & S. Raven, P. & E. Lawless, QM S19785.

Diagnosis. Differs from all other species in having broad golden scales covering carapace lightly and dorsal scute densely. Female unknown.

Etymology. The species epithet refers to the golden scales on the carapace and abdomen.

Description holotype male QM S19785

Carapace 2.28 long, 1.68 wide. Abdomen 2.36 long, 1.52 wide. Total length 4.6.

Colour: carapace black with uniform light cover of large golden scales; femora and patellae dark brown; distal patellae paler, colour fading quickly to yellowish on tarsi I–III, tibiae and metatarsi IV dark brown with ring of white hair distally on tibiae; abdomen with dark red brown dorsal scute with continuous cover of large golden scales; ventrally, sternum, coxae and genital scute red brown, ventral scute dark red brown with broad band of white hair in anterior half and black hair posteriorly. Carapace: finely rugose; fovea long, open, *ca*. 1.5 lengths from steep posterior slope. Sternum and coxae heavily rugose (Fig. 42c). Legs with white feathery hairs on femora-tibiae. Abdomen with short petiolar collar, dorsally almost totally indented. Spines: basal femoral spine on sloping mound (as with many spines). I: fe p1d2; ti v1.2.2; me v2.2. II: fe p1d2; ti v1.2.2; me v2.2. III: fe p2d3r1; ti p2r2v2.2.2; me p2r2v2.2.3. IV: fe p2 (strong) d3r1; ti p2d1r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2; pa p1w; ti p1w. Abdomen: dorsal scute for full length, ventral scute converges with convex sides to tracheal mound. Post-epigastric sclerites closed. Palp: subtegular indent small; one folded spermatic duct; paracymbial spine absent; embolus apically narrowly twisted.

Distribution and Habitat. Known only from tall heath verging on open forest at Davies Creek National Park on the Atherton Tableland, northeastern Queensland.

***Iridonyssus formicans* sp. nov.**
(Figs 44a–d, 45a–d. Map 22)

Material. **Queensland**: holotype ♂, Lake Broadwater via Dalby (Site 7), 27°21'S, 151°06'E, river gums, pitfall, 16 May–23 Nov 1985, G. Thompson, QM S39576. Paratypes: **Queensland:** 1♂, Toomba Station, site 1, 19°58'S, 145°34'E, open forest, pitfall, 14–16 Dec 2006, G. Monteith, D. Cook, QM S76659; 1♂, same data but, site 2, softwood scrub, 15 Dec 2006–13 Feb 2007, QM S76612. Beerwah Forestry Reserve, 26°51'S, 152°57'E, heathland, pitfall, M. Glover: 1♂, 9 Aug 1990, QM S39568; 1♂, 10 Oct 1990, QM S39536. 1♂ 1♀, East Woodmillar Top, 25°41'S, 151°36'E, open forest, pitfall, 25 Jan–7 Jun 1999, G. Monteith, G. Thompson, QM S60900; 1♂, Eight Mile Ck, 18°41'S, 144°42'E, dry eucalypt forest, pitfall, 1 Dec 1992–14 Apr 1993, R.J. & S. Raven, P. & E. Lawless, QM S22896; 1♀, Enoggera Reservoir, site 1, 27°26'S, 152°55'E, open forest, pitfall, 7 Aug–16 Oct 1999, G. Monteith, QM S56380; 1♂, Gayndah, hospital hill, 25°38'S 151°36'E, scrub remnant, pitfall, 25 Jan–2 Jun 1999, G. Monteith, G. Thompson, QM S55395; 1♂, same data but, 11 Oct–18 Dec 1998, G. Monteith, C. Gough, QM S52234; 1♂, Gold Creek Reservoir (BCC1), 27°28'S, 152°52'E, open forest, pitfall, 1–30 Oct 2003, QMP, QM S65346; 1♂, same data but, 20 Apr–26 May 2003, C.J. Burwell, QM S65270; 1♂, Hurdle Gully, 14.8 km WSW Monto, 24°55'S, 150°59'E, open forest, pitfall, 20 Dec 1997–26 Apr 1998, G. Monteith, QM S60104. Illaweena Street, Drewvale (BCC1), 27°38'S, 153°03'E, scribbly gum, heath, pitfall, QMP: 1♂, 26 May–1 Jul 2003, QM S79656; 1♂, 1–31 Mar 2004, QM S79652; 1♂ 1♀, 2–30 Jan 2004, QM S79654; ♂, 29 Jul–2 Sep 2003, QM S62190; 1♂, 31 Oct–1 Dec 2003, QM S79653; 1♂ 1♀, 30 Jan–1 Mar 2004, QM S79657; 1♂, 2–31 Oct 2003, QM S79655; 1♂, 1 Dec 2003–2 Jan 2004, QM S79651; Lake Broadwater via Dalby, 27°21'S, 151°06'E, river gums, pitfall, QMP & M. Bennie: 1♂ 1♀, (Site 7), 16 May–23 Nov 1985, G. Thompson, QM S39578, allotype, QM S39577; 1♀, (Site 1), 26 Jan–18 Feb 1985, QM S50448; 1♀, (Site 1), 3 Jan–25 Feb 1986, QM S50474; 1♂ 1♀, pitfall, 24 Nov 1985–3 Jan 1986, QMP & M. Bennie, QM S50471; 1♀ 1j, (Site 1), 18 Feb–25 Mar 1985 QM S50447; 1♂ 1♀, (Site 2), 17 May–24 Nov 1985, QM S50428; 1♂, Moolayember, 25°14'S, 148°37'E, open forest, pitfall, 27 Jun–6 Sep 2006, R. Raven, B. Baehr, A. Amey, QM S77186; 1♂, same data but site 3, 25°14'S, 148°37'E, yellow pan trap, 3–10 Mar 2006, S. Wright, C. Burwell, QM S80071' 1♀, Moranbah, 5 km S, 22°20'S, 148°03'E, pitfall, 25 Jun–20 Dec 1997, G. Monteith, E. Kruck, QM S44458; 1♂, Mt Coot-tha, Brisbane, 27°29'S, 152°57'E, open forest, pitfall, 4–11 Nov 1987, Rhonda Grundy, QM S29481; 1♂, Mt Pollux, SW base, site 1, 22°28'S, 147°52'E, brigalow, pitfall, 12 Jan–5 Mar 2006, C.J. Burwell, QM S80008; 1♂, Mt Robert, 11 km SSW, 21°28'S, 148°27'E, belah, pitfall, 23 Oct–18 Dec 2000, D. Cook, G. Monteith, QM S56927; 1♂, Mt Rose, via Taroom, 25°25'S, 149°58'E, mixed scrub, pitfall, 12 Jul 1997–23 Sep 1997, D.J. Cook, QM S41800; 1♂, Mt Windsor Tbld, Whypalla SF (pitfalls 6–10), 16°12'S, 144°58'E, ironbark woodland, pitfall, Summer 1992/93, S. Burnett, QM S33192; 1♂, Nipping Gully (Site 3), 25°41'S, 151°25'E, open forest, pitfall, 9 Oct–18 Dec 1998, G.

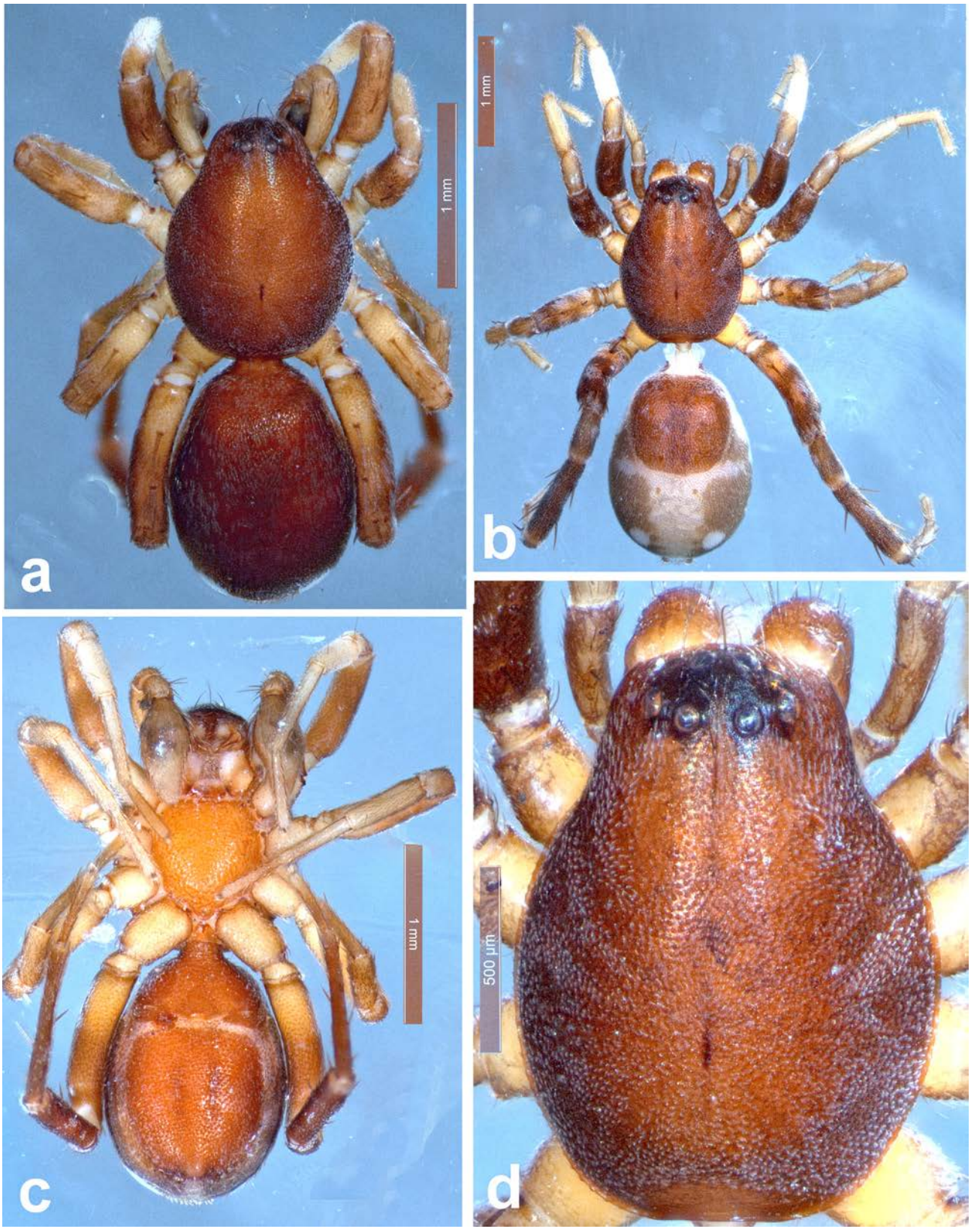


FIGURE 44. *Iridonyssus formicans* sp. nov. a, c, male habitus, QM S52266, dorsal (a) and ventral (c) views. b, d, female, QM S87968, dorsal views; b, habitus; d, carapace and chelicerae.

Monteith, C. Gough, QM S50048; Nipping Gully (Site 6), 25°42'S, 151°26'E, open forest, pitfall, G. Monteith, C. Gough: 1♀, 9 Oct–18 Dec 1998 QM S50108; 2♂ 1♀, 18 Dec 1998–25 Jan 1999, QM S52265, QM S50093; 1♂, same data but flight intercept trap, QM S50094. Proserpine, 20°30–33'S, 148°30–33'E, open forest, pitfall, R.

Raven, C. Burwell: 1♂, Deadman Creek, site XY17, 15 Aug–6 Nov 2007, QM S85234; 1♂, Lilypool Site, site XY18, 15 Aug–6 Nov 2007, QM S85880; 1♂, Thompson Creek, site XY15, closed forest, 6 Nov 2007–13 Feb 2008, QM S85348; 1♀, Thompson Creek, site XY16, rainforest, 9 Nov 2007, R.J. Raven, QM S86605; 1♀, Ravenshoe, 9 km N, 17°31'S, 145°29'E, flooded gum, baited pitfall trap, 3–5 Feb 1999, G. Monteith, D. Cook, QM S50883; 1♂ 1♀, Red Falls, basalt, 19°55'S, 145°44'E, semi-evergreen vine thicket, pitfall, 16 Dec 2006–15 Feb 2007, G. Monteith, D. Cook, QM S76693; 1♀, St George area, 28°03'S, 148°35'E, 7 Nov 1976, R.J. Raven, QM S39567; 1♂, Taroom district, Boggomoss #3, Mt Rose, 25°26'S, 150°01'E, open forest, pitfall, 12 Jun–9 Sep 1996, P. Lawless, QM S37195; 1♂, Taroom district, Nathan Gorge, 25°27'S, 150°08'E, riverine rainforest, pitfall, 13 Nov 1996–13 Jan 1997, P. Lawless, QM S37091; Toomba Homestead site, 19°58'S, 145°34'E, open forest, pitfall, R.J. Raven: 1♂, 15 Feb–8 May 2007, QM S79208; 1♂, 17 Dec 2006–13 Feb 2007, QM S79162; 1♀, same data but dense rainforest on basalt, 28 Sep–17 Dec 2006, R. Raven, A. Amey, B. Baehr, QM S79024; 1♀, Upper Brookfield, 27°30'S, 152°55'E, complex notophyll vineforest with *Araucaria*, litter, 30 Oct 1980, V. Davies, R. Raven, QM S52191; 1♀, Wetheron, 3 km SW, 25°34'S, 151°42'E, open forest, pitfall, 19 Dec 1998–27 Jan 1999, G. Monteith, C. Gough, QM S50090; 1♂, Woodmillar (East), top, 25°41'S, 151°36'E, open forest, pitfall, 18 Dec 1998–25 Jan 1999, G. Monteith, C. Gough, QM S52266; 1♀, Windsor Tableland, 1180m, open forest, pitfall, 24 Nov 1997–9 Feb 1998, G. Monteith & D. Cook, QM S91611. **New South Wales**: 1♀, Pulletop (site 5P), 34°00'S, 146°05'E, C. NSW, pitfall, 3–8 Nov 1999, D. Driscoll, QM S53913; 1♀, Round Hill Nature Reserve (site 1R), 33°03'S, 146°13'E, mallee, pitfall, 19–23 Dec 1999, D. Driscoll, QM S52930; 1♀, Medindee Lakes Trust Caravan Park, 24 Dec 1973, G. Gross, SAMA N199731; male, Koorawatha National Park, 34°03'12"S, 148°35'28"E, Nov 2010, B. Baehr, Bush Blitz, AM KS114568. **Victoria:** 1♂ 1♀, Barmah Forest, 35°56'S, 145°03'E, forest, pitfall, Jan 2001, A. Ballinger, QM S60230. **Northern Territory**: 1♂, Kakadu NP, 12°23'S, 133°18'E, open forest pitfall, site B1, 25 Nov 1986, A. Anderson *et al*., WAM T74032; 1♂, same data but 13 Aug 1986, WAM T74033; 1♀, same data but 25 Jan 1987, WAM T74034. **Western Australia**: Mt Claremont, site MC2, 31°57'39"S, 115°46'56"E, WAM T74035; 2♂, 1 Sep–4 Nov 1994, J.M. Waldock, A.F. Longbottom, WAM T74036; 2♂, same data but 4 Nov 1994–19 Jan 1995, M. Harvey, WAM T74037; 1♂, same data but MC1, 31°57'40"S, 115°46'00"E, J.M. Waldock, A.F. Longbottom, WAM T74038; 1♀, Zuytdorp (ZU3), 27°15'40"S, 114°04'13.7"E, 26 Aug–17 Oct 1994, A. Sampey et al., Carnarvon Survey, WAM T74039; 1♀, E Side of Walga Rock campsite area, 27°24'07"S, 117°23'10"E, vibration, 4 Nov 1998, J.M. Waldock, WAM T74040; female, Nedlands, Edward St, 31°59'S, 115°48'E, 15 nov 1995, A. Baynes, WAM T74041; 1♀, Eucla, 31°40'39"S, 128°52'59"S, 21 Jan 2003, under limestone rocks, M.S. Harvey, M.E. Blosfelds, WAM T74042; 1♂, Crowea, 34°28'S, 116°10'E, 15–22 Nov 1979, S.J. Curry, WAM T74043; 1♀, Wicherina Dam area, 28°43'40"S, 115°00'17"E, diesel vibration, 2 Nov 1998, J. Waldock, WAM T74044; 1♂, Recherche Archipelago, Hook Island, near beach, 34°02'11"S, 121°59'49"E, 16 Nov 1998, J. Waldock *et al.*, WAM T74045; 8 ♂, 9 ♀, Trigg Dune Bush site (TD4), 31°52'30"S, 115°35'45"E., 25 Sep–28 Nov 1995, M. Harvey, J. Waldock, WAM T74046. **South Australia**: 1♀, Baird Bay, 33°09'S, 134°22'E, 1997–Dec 1998, T. Payne, WAM T74047.

Diagnosis. Differs from *I. kohouti* sp. nov. in the brown carapace and abdomen without sheen or iridescence.

Etymology. The species epithet alludes to the ant-like appearance of the species.

Description holotype male QM S39576

Carapace 1.76 long, 1.36 wide. Abdomen 1.76 long, 1.60 wide. Total length 3.5.

Colour: carapace brown, lightened by uniform cover of fine white hairs; evergreen black; legs, coxae dorsally all yellow; femora I and II dark brown with light large mottling; femora III and IV yellow brown with dark mottling; patellae-tarsi I–III yellowish; patella and tibia IV brown with pallid spots distally, metatarsi and tarsi IV brown; abdomen with full dark red brown dorsal scute with patches of white feathery hairs on anterior face laterally at midpoint and subterminally; ventrally, sternum orange brown, coxae yellowish, scute red brown. Carapace: Uniformly finely pustulose; all sides steep, shallow set at least 1.5 length in front of steepest posterior. Margin finely serrate. Short white feathery hairs uniformly spread. Carapace profile drops from fovea to eyes. Eyes: PME *ca*. two diameters apart; AME *ca*. one diameter apart. Cheliceral teeth: 2R, 2P. Sternum, femora and ventral coxae distinctly pustulose. Legs: femur III and more so IV with strong predistal constriction. Large white feathery hairs laterally on femora (with large black), distally on patellae and dorsally on tibiae. Scopula absent. Spines: weak on I and II, stronger on III and IV. I: fe p1d2; ti v1.2w; me v2.2. II: fe p1d3; ti v2.2(w); me v2.2. III: fe p1d3r1; ti p2r2v1.2.1; me p2r2v0.2.0. IV: fe p2d3r1; ti p2d1r2v1.1.2; me p2r3v1.1.1.3. Palp: fe p1d2; pa 0; ti p1. Abdomen: full dorsal scute with short petiolar collar; post-epigastric sclerites long, wide; ventral scute broad, full,

sides convex, hirsute with low glabrous mound at tracheal spiracle; lateral space between scutes narrow. Palp: tibia with deep ventral excavation: cymbium wide, apically truncate with 3–4 thick short black setae, apical scopula sparse; bulb large, high; pre-embolic ridge narrow; embolus short, forming corkscrew of one turn.

Allotype female QM S39577. As ♂ except:

Carapace 1.88 long, 1.32 wide. Abdomen 2.60 long, 1.96 wide. Total length 4.5. Abdomen: dorsal scute in anterior 1/4, dark red-brown rounded square; otherwise gray brown with irregular white transverse band behind scute; medially pallid with two large spots of white hair in posterior 1/4. Two large white areas on each flank; ventrally with pallid zone behind booklungs and medially. Tracheal scute roundly triangular. Palp spines: fe p1d2; pa p1; ti p2; ta p1. Epigyne: with paragenital brackets, subquadrate with subdistal copulatory fossae leading anteriorly to large short bursa and folding back to smaller spermathecae.

Distribution and Habitat. Known from open forest in Queensland, New South Wales, Victoria, South Australia and Western Australia.

***Iridonyssus leucostaurus* sp. nov.**
(Figs 46a–d, 47a–c. Map 23)

Material. **Queensland**: holotype ♂, Tooloombah Ck, (NQ 41), 22°42'S, 149°34'E, eucalypt woodland, pitfall, 29 Jul–24 Nov 1992, R. Raven, P. & E. Lawless, M. Shaw, QM S24513. Paratypes: **Queensland**: 1♂, allotype 1♀, taken with holotype, QM S39583, QM S24515; 1♀, Davies Ck NP, 17°00'S, 145°34'E, pitfall, 26 Nov 1992–15 Apr 1993, R.J. & S. Raven, P. & E. Lawless, QM S19797; ♂, same data but 23 Jul–26 Nov 1992, QM S19847; 1♀, Mt Windsor Tbld, Whypalla SF (pitfalls 6–10), 16°12'S, 144°58'E, ironbark woodland, pitfall, Summer 1992/93, S. Burnett, QM S33198.

Non-type Material. **Queensland**: 1♀, Nipping Gully, 25°40'S, 151°26'E, open forest, pitfall, 25 Jan–2 Jun 1999, G. Monteith, G. Thompson, QM S52256; 1♀, Proserpine, Airport Drive, site XY12, 20°29'S, 148°34'E, closed woodland, pitfall, 5 Nov 2007–13 Feb 2008, R.J. Raven, QM S85628; 1♂, Taroom district (BS 24), Rock Wallaby Hill, 25°25'S, 149°58'E, vine thicket, pitfall, 12 Nov 1996–12 Jan 1997, P. Lawless, QM S50881; 1♂, Carnarvon Stn near Piebald Spring, 24.8311°S, 147.742°E, 821m, 6–24 Nov 2010, C. Lambkin *et al*., malaise, eucalyptus/Callistemon, QM S95189.

Diagnosis. Males and females differ from those of *I. formicans* sp. nov. in the radial lines of pallid hair on the interstrial ridges (Fig. 47a).

Etymology. From white cross (Greek), the emblem of the St John Ambulance, in recognition of their always appreciated attendance and supplication at sporting events in Queensland.

Description holotype male QM S24513

Carapace 2.24 long, 1.52 wide. Abdomen 2.32 long, 1.60 wide. Total length 4.6.

Colour: carapace red brown with bands of white feathery hairs dorsally and on interstrial ridges; all femora, patellae–metatarsi IV dark red brown; patellae–tarsi I–III orange to yellow brown; abdomen dorsally with almost full dark red brown scute with black mottling evident through scute, transverse bands of feathery hairs at anterior 1/6 and 1/3; femora, and to a lesser extent patellae and tibiae, with large white hairs; ventrally, sternum dark red brown with orange brown coxae; genital scute orange brown, ventral scute dark red brown. Carapace: uniform cover of small pustules; not iridescent; fovea in broad plateau, *ca.* three lengths from very steep, concave slope; margins rugose; caput rises slightly from fovea to just behind PME. Eyes: group occupies *ca.* half of headwidth. Sternum, coxae and ventral scute pustulose. Legs: femoral constriction on IV strong, weaker on III. Sub-basal spine on retrolateral femur III *ca.* half length of distal spine. Spines. I: fe p1d3; ti v1.2.2; me v2.2. II: fe d2; ti v1.2.2; me v2.2. III: fe p2d3r2; ti p2r2v1.2; me p2r2v2.2.3 IV: fe p2d3r1; ti p2r2v1.2; me p3r3v2.2.3. Palp: fe p1d2; ti p2. Abdomen: dorsal scute for 7/8 length with short collar (dorsally and ventrally); genital scute strong with closed post-epigastric sclerites; ventral scute broad, edges convex, converging posteriorly from anterior 1/5; tracheal region smooth, low domed. Palp: tibia with broad shallow excavation; cymbium without scopula or paracymbial spine, apically with three short thick setae. Subtegulum projects slightly on prolateral edge and indents shallowly retrolaterally; bulb large with single loop in spermatic duct; low pre-embolic ridge with small twisted embolus.

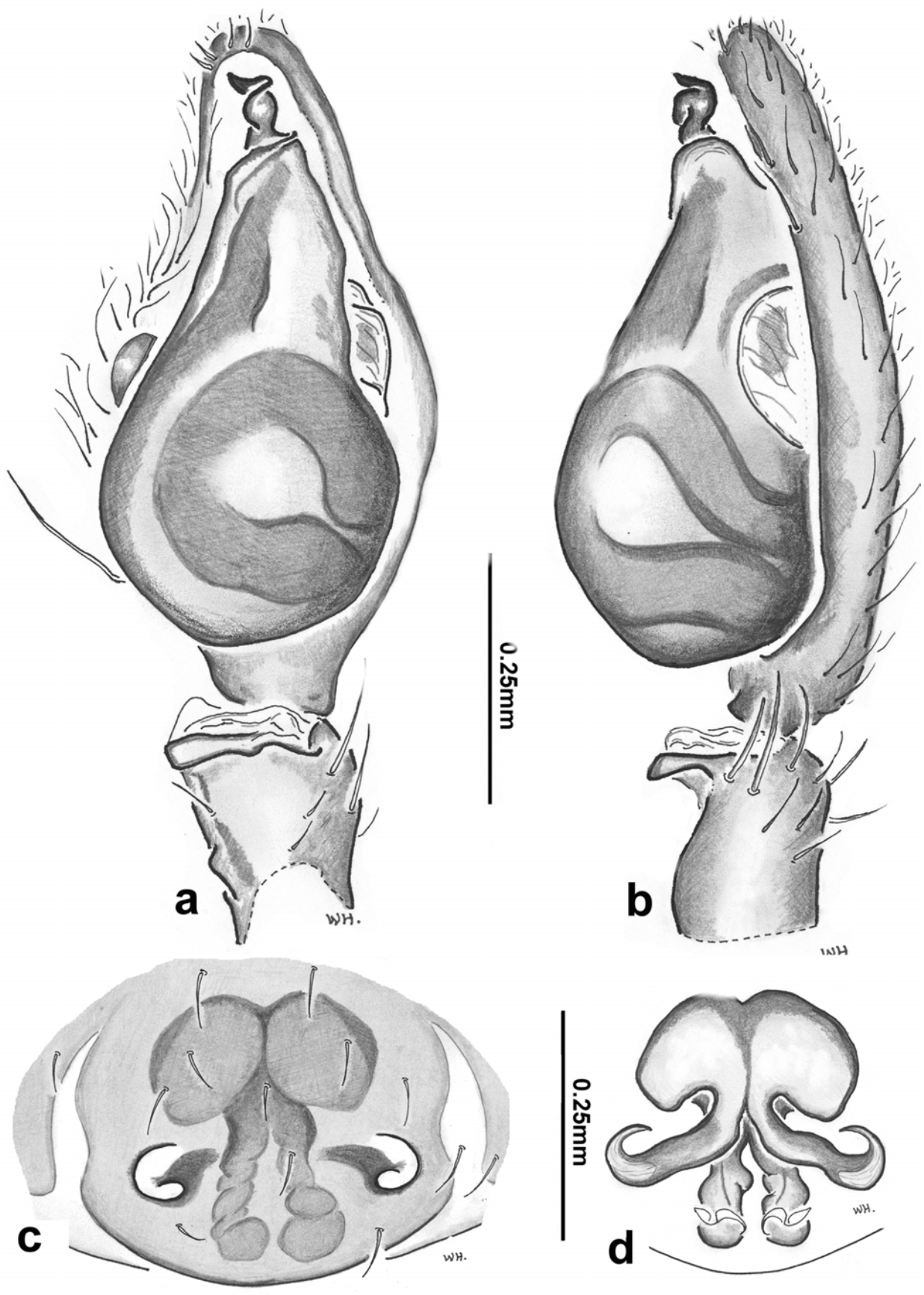


FIGURE 45. *Iridonyssus formicans* sp. nov.: a, b, holotype male, QM S39576: palpal tibia, bulb and cymbium, ventral (a) and retrolateral (b) views. Female allotype, QM S39577: epigyne, external (c), and internal (d).

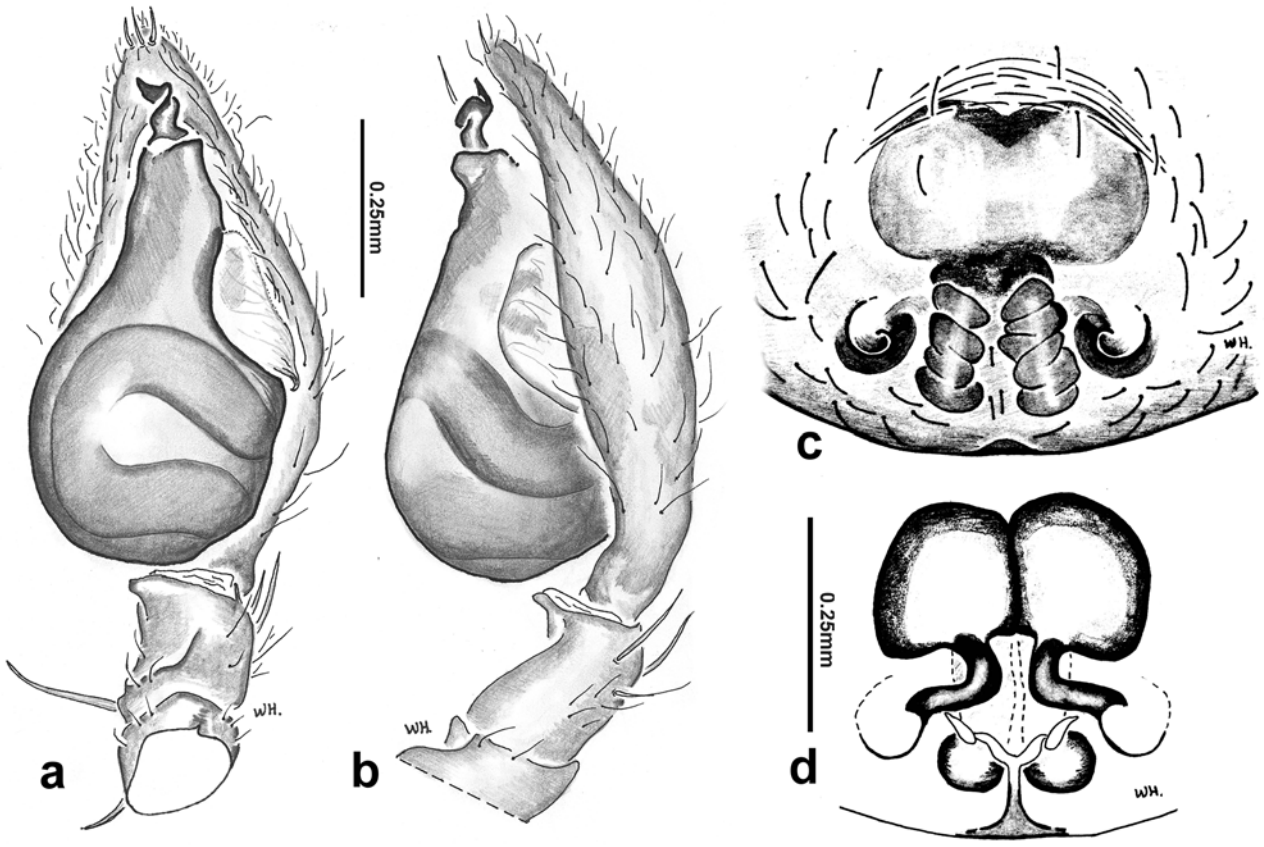


FIGURE 46. *Iridonyssus leucostaurus* sp. nov., holotype male, QM S24513: palpal tibia, bulb and cymbium, ventral view (a), and retrolateral view (b). Female allotype, QM S24515: epigyne, external (c), and internal (d).

Allotype female QM S24515. Like ♂ except:

Carapace 2.48 long, 1.72 wide. Abdomen 2.12 long, 1.60 wide. Total length 4.6.

Colour: carapace brown with fine black feathery hairs in striae and broader bands of white hair on interstrial ridges. Legs yellow brown with black feathery hairs dorsally on femora and laterally around spine bases, white band around distal tibia IV; patellae-tarsi yellow brown; abdomen dorsally with roughly square red brown scute for half length, a broad medial band forming broad arrow in posterior quarter, laterally with dark 'shoulders' dorsally and large pallid anterior crescent and small posterior pallid ovoid region; ventrally sternum, coxae and genital scute orange brown, ventrally a broad pallid rhomboid. Chelicerae: with shield of 8–9 thick black fang setae. Scopula absent. Black feathery hairs on femora-metatarsi. Spines: all strong. I: fe p1d2; ti v1.2.2; me v.2.2. II: fe p1d2; ti v1.2.2; me v2.2. III: fe p2d3r2; ti p2r2v2.2.1; me p2r2v2.2.3. Basal spines on lateral femur III. IV: fe p2d3r1; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d1w; ti p2d1w; ta p2 basal. Abdomen: tracheal scute broad hirsute semicircle with small, glabrous mound medially. Post-epigastric sclerites closed. Epigyne: paragenital brackets diffuse and only for basal 2/3 of length of epigyne. Post-epigastric sclerites crescentic, copulatory fossae lead to highly folded basal duct and into spermathecae.

Distribution and Habitat. Known from open forest from the Windsor Tableland, west of Cairns to south-eastern Queensland.

Kolora gen. nov.

Diagnosis. Differs from all other Australian corinnids and from *Corinnomma* in the very long legs (Fig. 48a) and the tiny eye group (Fig. 16e), and basally bulbous leg femora (Fig. 5a).

Type Species: *Kolora cooloola* sp. nov.

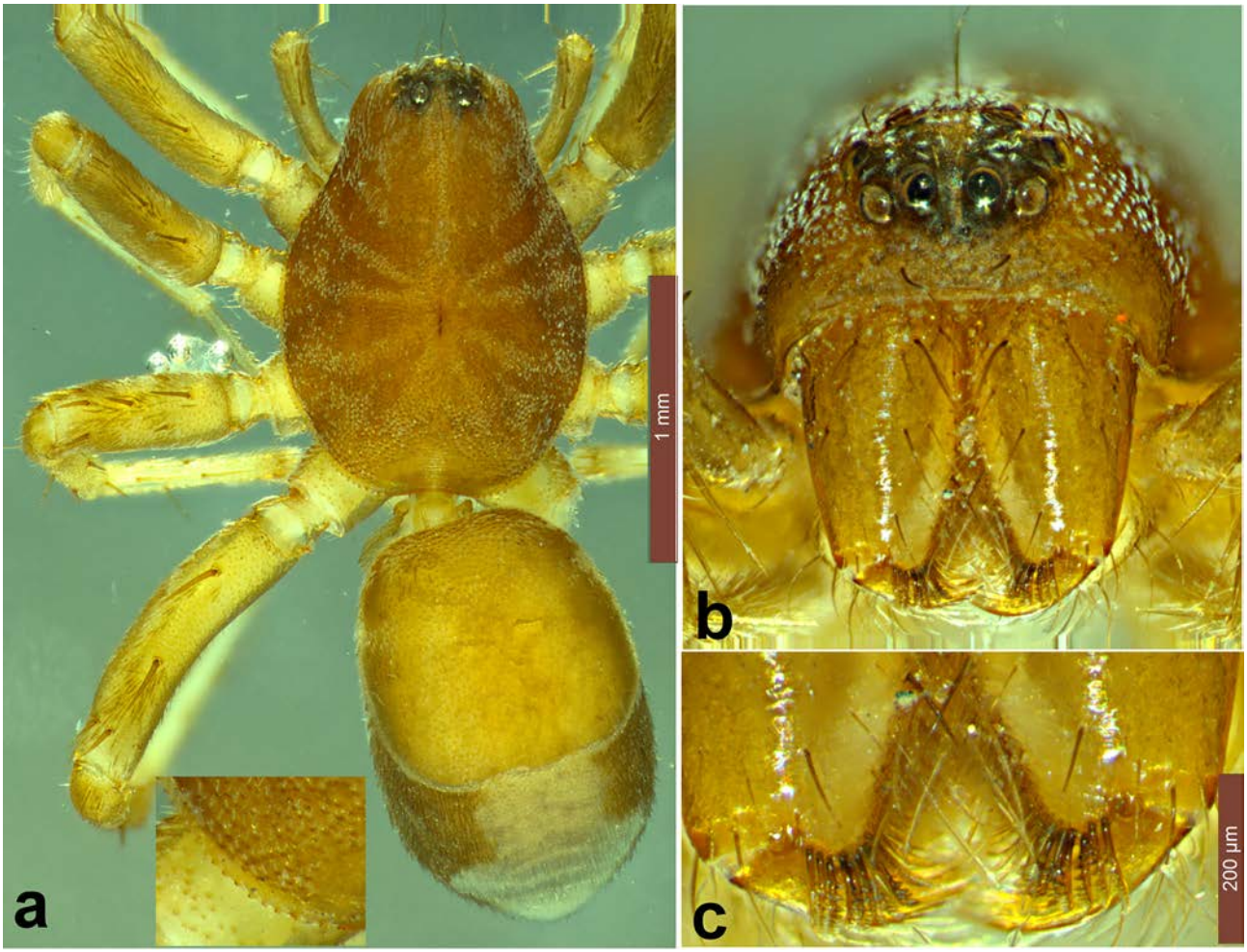


FIGURE 47. *Iridonyssus leucostaurus* sp. nov., allotype female, QM S24515: a, habitus, inset, close-up of carapace margin; b, carapace and chelicerae (c), anterior view.

Description. Long cephalothorax with pit-like fovea (Fig. 16e), deep striae, high clypeus. Lateral profile of carapace (Fig. 2d): caput slopes downward in smooth arch from just behind eye group to posterior declivity; highest point just behind eye group; eyes set behind clypeus edge. Eye group small, occupies *ca*. 0.4 of head width (Fig. 16e). Chelicerae: fang mound low with long curved setae or not evident in females; retrolateral face of moderately large chelicerae with small distinct multicusped ridge (Fig. 2d), slightly less evident than in *Nucastia.* Very long legs (Figs 48a, 51c); male smaller, with dorsal scute albeit thin and subtle, feathery hairs on abdomen, claws enclose tufts, very long legs but tarsi not curved or distally incrassate. Pedal femora basally bulbous (Fig. 51a). Male palp: tibia with raised distal edge ventrally; three lines of weak cymbial spines distally, cymbium very long; very long, tube-like bulb with very long tapering tip; long chelicerae with two to three small teeth set distally on promargin, three to five small teeth on retromargin and few granules. Feathery hairs on femora, metatarsi and abdomen; wide pedicel ventrally. RCH present. Trochanters not notched. Single line of *ca*. six trichobothria on tarsi. Tarsal organ a low mound with off-centre pit and trichobothrial base with 2–4 concentric ridges (Fig. 49d). No scopula. Cymbium with 2–3 curved spines on tip resembling (Figs 49c, 52c) . PLS *ca.* 1/2 diameter of ALS. Scutes: thin long narrow dorsally and ventrally in males; in females, confined to anterior face of abdomen and small tracheal scute.

Etymology. An aboriginal word for fresh water lagoon; the gender is feminine.

Included Species: *Kolora cushingae* sp. nov., *K. cooloola* sp. nov., *K. lynneae* sp. nov. and *Corinnomma sauverubens* Simon, 1896.

Remarks. The male palp of all species of *Kolora* are very similar with the main differences being in the tip of the embolus and relative extent of the embolic portion; other differences are in abdominal and leg patterns, and pilosity of the carapace.

Key to species of *Kolora*

Males

1. Carapace with white feathery hairs (Fig. 51a) . . . . . *K. sauverubens*
   Carapace without such hairs 2
2. Ridges of apical embolic screw indistinct (Fig. 52b, d); carapace with broad median brown sash for length (Fig. 48d) . . . . . *K. lynneae*
   Ridges of apical embolic screw distinct (Fig. 49b, 50f); carapace without broad median brown sash (Fig. 48a) 3
3. Abdomen with small but distinct dorsal scute (Fig. 48f); post-constriction embolus 0.63 of overall bulb (Fig. 50a) . . . . . *K. cushingae*
   Abdomen without dorsal scute; post-constriction embolus 0.67 of overall bulb (Fig. 49a) . . . . . *K. cooloola*

Females (females of *K. cooloola* unknown)

1. Carapace with white feathery hairs (Fig. 51d) . . . . . *K. sauverubens*, part
   Carapace without such hairs 2
2. Carapace with broad median brown sash for length (Fig. 48b) . . . . . *K. lynneae*
   Carapace without such a sash 3
3. Copulatory fossae two diagonal ridges (Fig. 50d) . . . . . *K. cushingae*
   Copulatory fossae two small ovoid ridges separated by three times their diameter (Fig. 50g) . . . . . *K. sauverubens*, part

***Kolora cooloola* sp. nov.**
(Figs 16e, 48a, 49a–e. Map 24)

Material. **Queensland**: holotype ♂, Lake Freshwater (camp), Cooloola, 26°00'S, 153°08'E, 7 Apr 1987, J. Grimshaw, QM S31532. Paratypes: **Queensland**: 1♂, Binjour Plateau, Redvale Rd, 25°33'S, 151°28'E, open forest, flight intercept trap, 20 Dec 1997–26 Apr 1998, G. Monteith, QM S56983; 1♂, same data but Swains Rd, 25°32'S, 151°30'E, rainforest, 20 Dec 1997–26 Apr 1998, QM S60107; 1♂, Cooloola, 26°12'S, 153°03'E, pitfall, Apr 1978, V. Davies, R. Raven, QM S29482; 1♂, Fraser Is, Orchid Beach (F04), 24°57'S, 153°19'E, heath, pitfall, 20 Aug–17 Dec 1997, R. Raven, P. Lawless, QM S41762; 1♂, Jimna SF, 26°40'S, 152°28'E, rainforest, 4 Apr 1986, R. Raven, J. Gallon, QM S28420; 1♂, same data as holotype, QM S31533.

Other Material. **Queensland**: juv. female, Springfield, near Ipswich, 27°40'S, 152°55'E, 19 Sep 1998, K. Walker, G. Robinson, QM S42751.

Diagnosis. Males differ from those of *K. cushingae* sp. nov. by the absence of abdominal scutes and the more distinct spirals on the embolus tip (Fig. 49b). Female unknown.

Etymology. A noun in apposition from the type locality.

Description holotype male QM S31532

Carapace 4.24 long, 2.56 wide. Abdomen 4.64 long, 2.00 wide. Total length 8.9.

Colour: carapace fawn with mottled brown large ovoid area around fovea, clypeus brown. Legs: femur I brown in basal half, fading to dirty fawn, tibiae and metatarsi I, II fawn; II brown, paler apically; III brown, IV pallid in basal third, brown distally; all trochanters and patellae, and tibiae III and IV brown, patella II brown laterally. Chelicerae orange brown; sternum, labium and basal half of coxae and maxillae light yellow, distal coxae and maxillae light brown; abdomen brown dorsally with pile of mustard coloured hair for nine tenths, faded dorsomedially in anterior half, posteriorly a large pallid area with pile of white hair with concave anterior margin; ventrally with brown sinuous area medially and flanked by pallid mottled bands. Carapace: with short raised caput, deep defined striae; fovea short, longitudinal pit; clypeus vertical. Uniform pile of light brown hair, no feathery hairs evident. Slight depression medially at base of caput. No strong black bristles. Posterior margin transverse, narrow but wider than eyes. Eyes: eight in small, tight group above vertical high clypeus; All of similar size; front row recurved, back row slightly procurved; back row slightly wider than front. Chelicerae: fang shield distinct but low, rounded; large, vertical chelicerae with long almost vertical furrow; two small teeth set well up from fang joint on promargin, four small teeth on retromargin and three granules between margins, behind maxillae; fang long, diagonal with constriction at half length; long chelicerae project well below maxillae. Sternum: broad, shield-shaped, without contra-coxal triangles; indented behind labium; almost glabrous. One long seta submarginally opposite each coxae and two more behind labium. Maxillae: short with convex outer margin, inner glabrous level extends over anterior face; serrula long. Labium longer than wide with basal prongs laterally. Legs: extremely long

FIGURE 48. *Kolora* spp., a, *K. cooloola* sp. nov., subadult female, habitus (Photo: QM, J. Wright); b–d, *K. lynneae* sp. nov., b, c, allotype female, habitus (b), cheliceral fang mound and setae, frontal view (c); b, holotype male, habitus. e, f, *K. cushingae* sp. nov., holotype male: e, lateral palp showing retrocoxal hymen on I (arrow); f, abdomen, lateral view.

basally; fine feathery hairs dorsally and laterally on femora to tibiae; scopula absent; from above, femora basally bulbous, tapering quickly to one-third. Spines: all short, brown, at least two lengths apart. I: fe p2d3r3; pa 0; ti v2.2; me v1.1.1.1 (not paired). II: fe p3d2r3; pa 0; ti p1v2.2; me v1.1.1.1. III: fe p4d2r5; pa 0; ti p2r2v2.2.2; me p2r2v6. IV: fe p6d3r7; pa 0; ti p2r2v13; me p2v11 most not paired (=10 + 1). Palp: fe p1d1; pa p1(l) d1r1 thin; ti p2d1. Claws: small, dentate, set just above small tufts; tufts similar on I and IV. Abdomen: clad with feathery hairs; scutes

not evident; distinct triangular colulus behind wide tracheal spiracle without sclerotised ridge. Spinnerets: ALS stout. Palp: tibia long with diagonal groove retroventrally and conical process on retrodistoventral corner; tip of cymbium with long slightly curved claw; cymbium very long, basal margin wide with diagonal dorsoventral ridge retrolaterally; apical cone very long, grooved to tip; tegulum constricts gradually then quickly to dark conical embolus with screw tip; no scopula on dorsal cymbium; sperm duct concave on prolateral edge, reflexing ventrally and back subventrally; tegulum deeply indented retrobasally.

Distribution and Habitat. Known from open forest and heath from Brisbane to Fraser Island, southeastern Queensland.

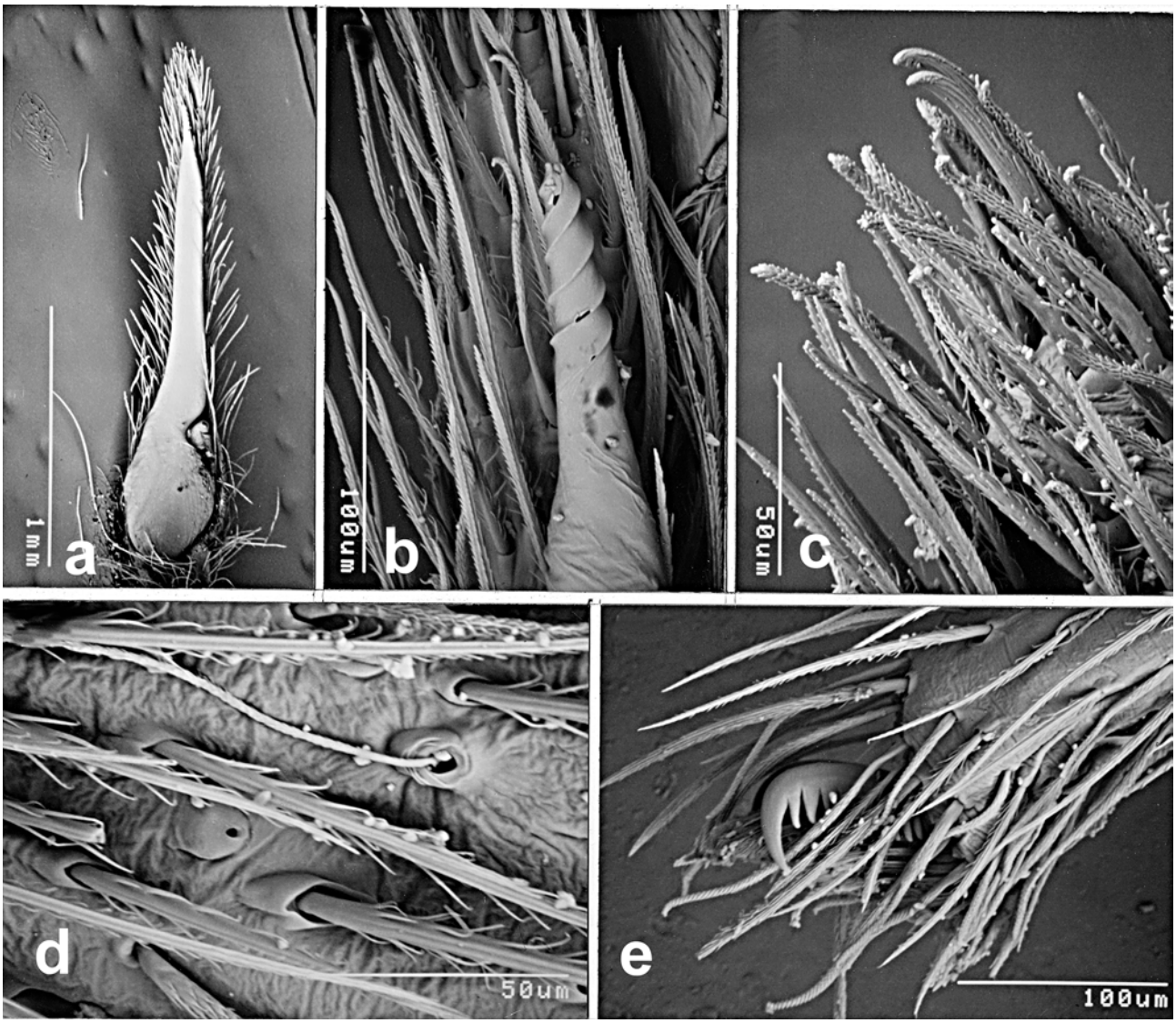


FIGURE 49. *Kolora cooloola* sp. nov., scanning electron micrographs, holotype male, QM S31532: a, palpal bulb and cymbium, ventral view; b, embolus tip, ventral view; c, cymbium tip showing curved apical claw-like spine, retrolateral view; d, tarsal organ and trichobothrial base; e, paired claws on leg I, retrolateral view.

***Kolora cushingae* sp. nov.**
(Figs 2d, 48e, f, 50a–e. Map 25)

Material. **Queensland**: holotype ♂, Upper Hall Ck, via Camila, 21°52'S, 149°18'E, open forest, intercept flight trap, 4 Dec 1996–6 Apr 1997, G. Monteith, E. Maulder, QM S31534. Paratypes: **Queensland**: allotype ♀, 1♀, 1♂ 1♀, taken with holotype, QM S31535, QM S39286, QM S31536; 1♀, Bogantungan, 13.5 km N, 23°31'S, 147°17'E, ironbark woodland, pyrethrum knockdown, 18 Dec 2000, G. Monteith, QM S56142; 1♂, Bushley Stn

(DW12), 23°32'S, 150°15'E, open forest, pitfall, 21 Mar–22 Oct 1990, D. Wallace, R. Raven, K. Williams, QM S34476; 1♂, Lords Table, SE slopes, 22°40'S, 148°01'E, vine forest, malaise trap, 9 Jan–4 Mar 2006, C. Burwell, QM S80059.

Diagnosis. Differs from all other species in the reduced or absent pattern on carapace, narrow white band and wide mustard brown points on distal femora and tibiae IV.

Etymology. The species epithet is in honour of Dr Paula Cushing, for her work on ant mimicry in spiders.

Description holotype male QM S31534

Carapace 3.28 long, 2.08 wide. Abdomen 3.92 long, 1.76 wide. Total length 7.2.

Colour: carapace orange brown with two darker triangles on posterior lateral caput; dark around fovea from pile of dark large feathery hairs and medial band of white hairs through fovea longitudinally; abdomen dark brown for 9/10th with pile of black feathery hairs; posteriorly over pallid article narrow band of white hairs, then broad terminal cape of mustard coloured hairs; from side mustard cape undercuts abdomen; chelicerae dark orange brown; all legs, coxae, sternum orange brown except for distal length of femur IV dark brown and brown smudge subdistally on tibia IV; labium and maxillae red brown. Carapace: band of white hairs from PME to posterior margin; fovea small, pit like, surrounded by wide area of dark feathery hairs. Chelicerae: hirsute; fang shield small; fang groove steep-sided near fang base; three teeth on retromargin, distal smallest; two on promargin and four fine teeth spaced between them. Sternum: lightly hirsute with long erect bristle submarginally opposite each coxae; two close opposite IV. Maxillae with slightly concave margins. Pedicel not continuous with sternum, collariform with anterior triangle. Legs: trochanters not notched; pallid feathery hairs on femora to tibia. Spines: I: fe p3d4r1 basal pa 0; ti v2.2; me v2.2. II: fe p4d3r4; pa 0; ti v2.2; me v2.1.2. III: fe p4d3r4; pa 0; ti p2r2v2.2.2; me p2r2v2.2.1. IV: fe p4d3r4; pa 0; ti p2r2v2.2.2; me p3r2v2.2.1. Palp: fe p1d1 long bristles; pa 1 dorsoapical; ti probasal; cymbium 1 probasal. Abdomen: weak oval scute on anterior quarter dorsally; genital scute with indented but not thickened anterior ventral margin; colulus distinct; tracheal spiracle not accentuated; central zone set off by series of depressions and change of hairs from feathery on lateral to simple on central zone. Palp: tibia with raised distal edge ventrally; cymbium distally with lines of 6–10 short thick bristles on each edge; bulb as for *K. cooloola* sp. nov. but ridges of spiral less distinct; single apical claw-like spine with subapical spine retrolaterally (Fig. 50c).

Allotype female QM S31535. As for ♂ except as follows:

Carapace 3.52 long, 2.32 wide, Abdomen 4.96 long, 2.56 wide. Total length 8.5.

Colour: abdomen dorsally with longitudinal band of white hairs anteriorly, small oval sclerotised dorsal scute orange brown. Carapace indented strongly posteriorly. Chelicerae shorter than ♂; pronounced fang shield with *ca*. 15 long thick curved black bristles; 14 erect bristles on sternum, two on labium, 2–3 along maxillae, 2–3 diagonally and two on ventral coxae. Spines: I: fe p2d4r2; ti v2.2; me v2.2. II: fe p2d3r2; ti v2.2; me v2.2. III: fe p3d3r4; ti p2r2v2.2.1; me p2r2v2.2.2. IV: p5d4r4; ti p2r2v2.2.2.2; me p2r2v2.2.2.2. Palp: fe p1d1; pa p1 weak d1 apical; ti p2d1; ta p2v2 distal; claw rudimentary. Claws and tufts longer on IV than I; 2–3 small teeth on claws of IV. Epigyne: broad, domed with two small apertures laterally. Abdomen: dorsal scute small, oval, anterior; genital scute reaches only to ectal booklung margin.

Distribution and Habitat. Known only from open forest in areas to the north and west of Rockhampton, mideastern Queensland.

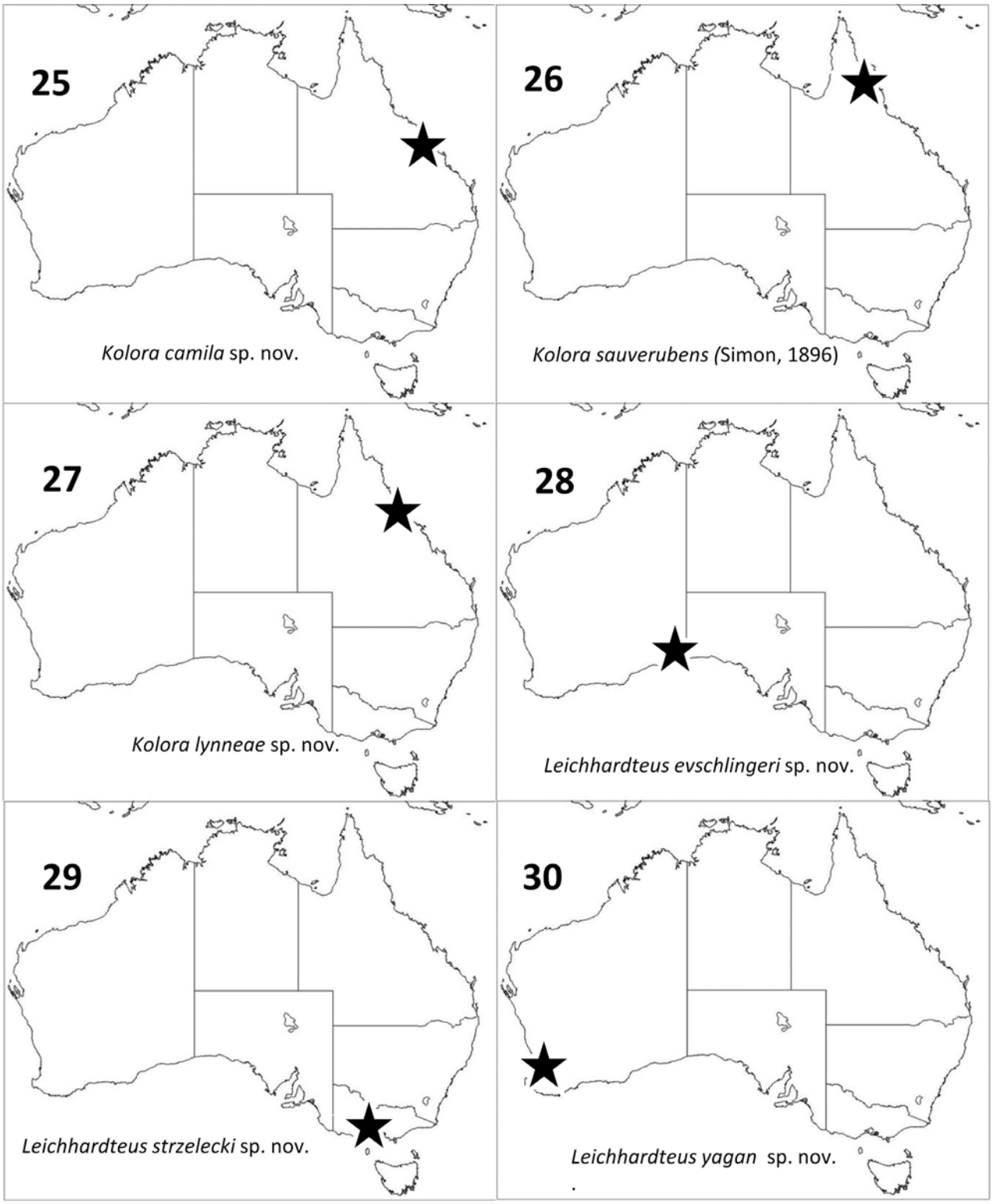
Kolora sauverubens (Simon, 1896), new combination

(Figs 50f–h, 51a–d, 135. Map 26)

Corinnomma sauverubens Simon, 1896: 403 (MF); Rainbow, 1911: 254; Roewer, 1955: 620.

Material. Queensland: syntypes, 1♀ (lectotype, here designated), 1 penultimate ♂ paralectotype, here designated, "Cooktown", MNHN 18269, examined.

Other Material. **Queensland**: 1♂, Wyandotte Ck (NQ 30/1), 18°29'S, 144°55'E, eucalypt woodland, pitfall, 6 Nov 1991–26 Jul 1992, R. Raven, P. Lawless, M. Shaw, QM S21790; 1♂, 1♀ Footprint Scrub, site 1, 19°41'S, 146°26'E, semi-evergreen vine thicket, flight intercept trap, 8 Dec 2006–10 Feb 2007, G. Monteith, D. Cook, QM S76678, QM S76575; 1♂, Forty Mile Scrub NP, 18°05'S, 144°51'E, rainforest, pitfall, Oct 1993–Jan 1994, J. Hasenpusch, QM S52083.



MAPS 25–30. Records of Australian species of *Kolora* gen. nov. and *Leichhardteus* Raven & Baehr, 2013.

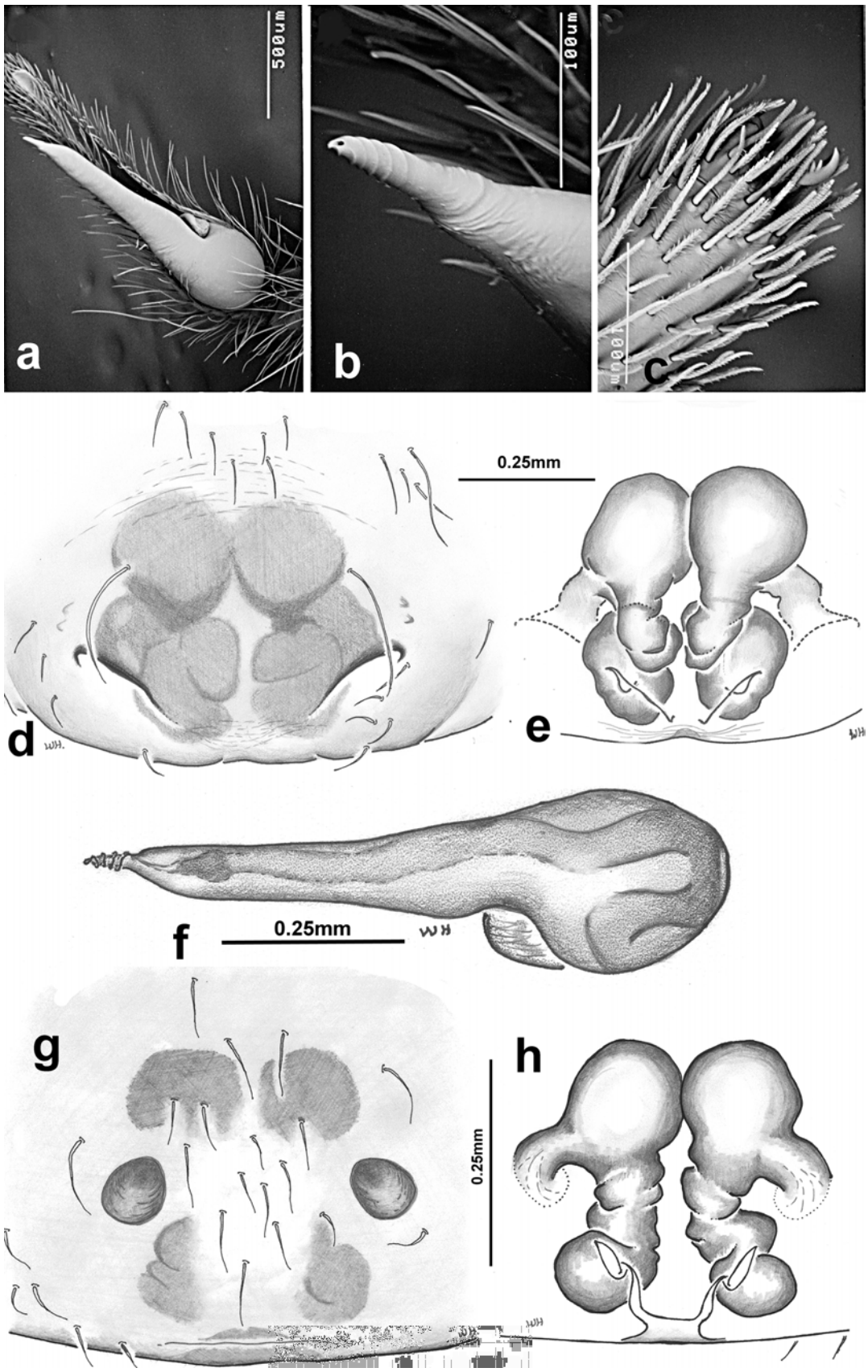


FIGURE 50. *Kolora* species, a–e, *K. carmila* sp. nov., scanning electron micrographs: a, b, holotype male, QM S31534; c–e, allotype female, QM S31535: c, palpal tarsus, tip showing apical claw, retrolateral view; epigyne, external (d), and internal (e). *K. sauverubens* (Simon, 1896), f–h: f, male, QM S21790, palpal bulb, retrolateral view; female, QM S76575: epigyne, external (g), and internal (h)

Diagnosis. Differs from males and females of all other species by large white feathery hairs lightly but uniformly over carapace (Fig. 51a, d).

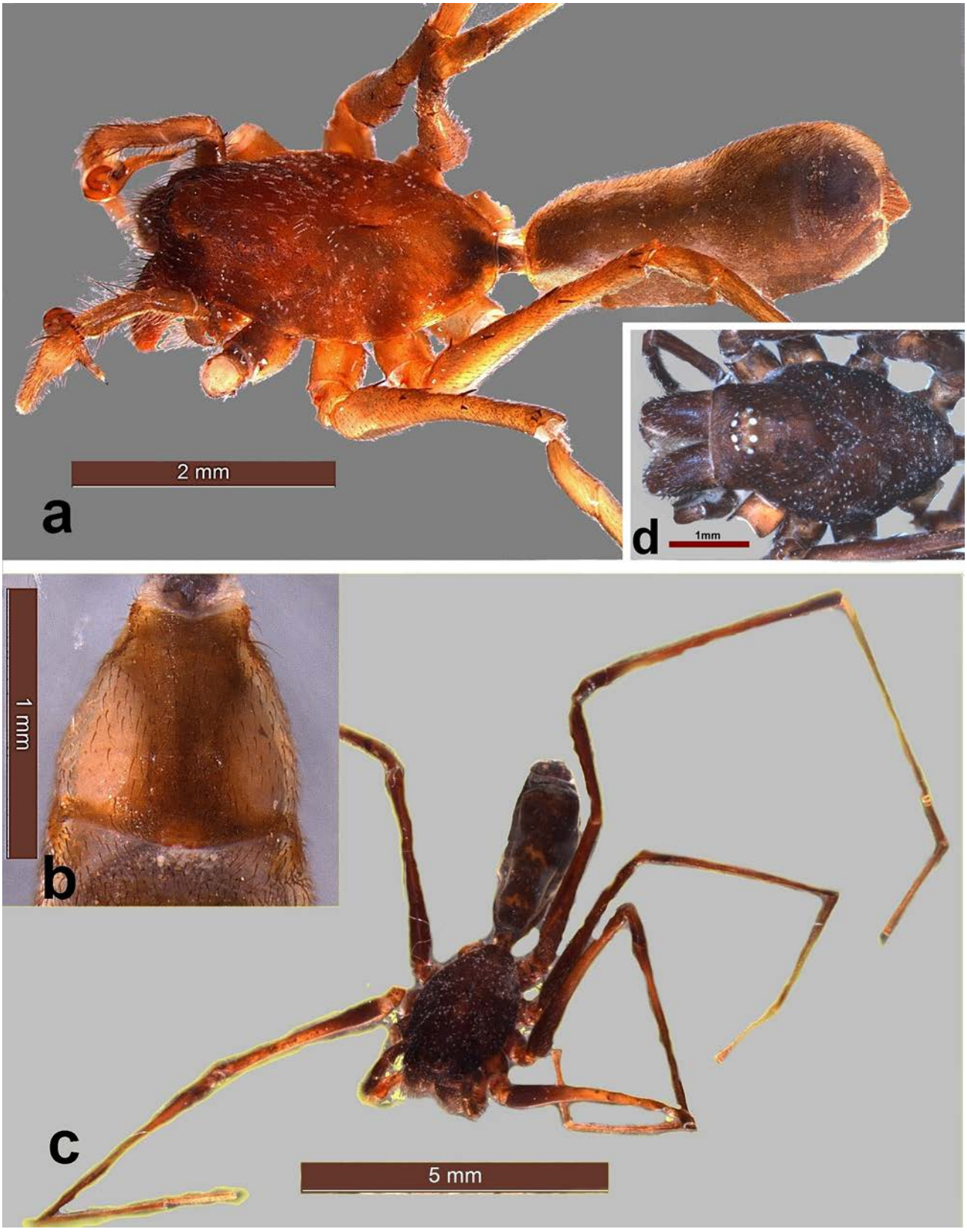


FIGURE 51. *Kolora sauverubens* (Simon, 1896), habitus. a, male QM S21790, habitus; b, epigastric scute, ventral view; c, d, female.

Description male QM S21790

Carapace 3.04 long, 1.80 wide. Abdomen 3.60 long, 1.48 wide. Total length 6.6.

Colour. Carapace brown, femora I, distal II and III brown, other leg segments pale brown; abdomen: cuticle separated, dorsal scute light brown, extends for 4/5ths; wide bush of white feathery hairs laterally down to scute at 1/3. Carapace: light uniform cover of bushy feathery white hairs and feathery black hairs; fovea a short closed groove; long and short incurved hairs mixed with long and short bristles; eight black bristles opposite coxae with similar length bristles nearby. Coxae each with single long bristle and several much shorter. Legs: feathery hairs numerous on femora, few basally on tibiae, few on metatarsi IV. Spines: I: fe p2d4; pa 0; ti v2.2 rest missing. II: fe p3d3r3; pa 0; ti v2.2; me v2.2. III: fe p2d3r4; pa 0; ti p2r2v2.2.2; me p2r2v2.2.2. IV: fe p3d3r4; pa 0; ti p2r2v2.2.2; me p2r2v2.2.2. Palp: fe p1d1; pa apical 1; ti p2 long d1; cymbium p1 long bristle basal, 2 apical, 1 subapical. Abdomen: dorsal scute long, narrow, of varying width anteriorly, widening to straight sides posteriorly; anteriorly, abdomen narrow, dorsal and genital scute close; genital scute extends high laterally without anterior collar or thickening; ventral scute long, posteriorly rounded, ends well short of spiracle. Spiracle marked by transversely oval lightly sclerotised scute. Palp: with distinctly ridged spiral on embolus tip.

Female QM S76575

Carapace 2.48 long, 1.64 wide. Abdomen 3.04 long, 0.95 wide. Total length 6.0. As for ♂ except: abdominal scutes very weak, small. Epigyne: CO small, about 3 diameters apart.

Distribution and Habitat. Known only from open forest woodland west of Townsville north to Forty Mile Scrub, northeastern Queensland. The published type-locality, Cooktown, northeastern Queensland, has proven to be incorrect for *Leptopicia bimaculata* (Simon, 1896) and same is likely to be true here.

Remarks. The lectotype female has had the diagnostic hairs rubbed from its carapace over time.

***Kolora lynneae* sp. nov.**
(Figs 48b–d, 52a–f. Map 27)

Material. **Queensland**: holotype ♂, Gayundah Ck, Hinchinbrook I, 18°22'S, 146°13'E, rainforest, 7–15 Nov 1984, G. Monteith, G. Thompson, D. Cook, QM S28409. Paratypes: **Queensland**: 1♂, Mission Beach (S2), 17°52'S, 146°05'E, rainforest, pitfall, 4 Dec 1995–2 Jan 1996, M. Cermak, QM S39287; 1♂, Innisfail, 17°31'S, 146°01'E, 30 May 1997, J. Hasenpusch, AM KS97253; allotype 1♀, Tinaroo Ck, Mareeba, AM KS52061.

Diagnosis. Differs from all other species in dark brown sash centrally down carapace; males have only the apical embolus irregularly rugose, not spiralled.

Etymology. The species epithet is in honour of the daughter, Lynne Rawlinson, of collection manager and artist, Wendy Hebron**.**

Description holotype male QM S28409

Carapace 3.28 long, 2.00 wide. Abdomen 3.20 long, 1.44 wide. Total length 6.5.

Colour: carapace brown yellow with broad sash from and including chelicerae, full width of caput, narrowing slightly in front of fovea with irregular margins back to posterior margin; palp, leg I yellowish; II yellowish except for brown flanks on femora; III: femora brown, pallid dorsally and ventrally; IV missing; abdomen brown with pile of short golden feathery hairs and distal cap of pallid hair; sternum, coxae and trochanters yellowish. Carapace: uniform pile of short white feathery hairs; fovea shallow, open; long golden brown hairs directed forward along cuticle in front, beside and slightly behind eyes. Chelicerae: both margins with two large teeth set midlength, retromargin also with one smaller distal; fang shield small, distinct, rounded. Maxillae: slight ectal concavity medially. Sternum with two additional bristles medially. Legs: both legs IV missing, tufts larger on III than on I; all leg femora with feathery hairs. Spines: leg I: fe: p3d5r2; pa 0; ti v2.2; me v2.1.1 all long. II: fe: p3d4r3; pa 0; ti v2.2; me v2.1.1 all long. III: fe: p3d3r4; pa 0; ti p2r2v2; me p2r2v2.1.1. Palp: fe p1d1; pa and tibia all long bristles. Palp: as for *K. cooloola* sp. nov. but paired claw-spine present on cymbium tip. Abdomen: long narrow dorsal scute for two-thirds length, genital scute only weakly sclerotised; mid-dorsal with saddle; ventral scute long narrow fused to tracheal scute; colulus and spiracle distinct, unsclerotised.

Allotype female AM KS52061. As male but:

Carapace 3.48 long, 2.06 wide. Abdomen 4.46 long, 2.34 wide. Total length, 9.1. Colour: carapace orange brown with broad brown medial stripe for length; abdomen abdomen matt black with transverse bar at midlength

and large pallid area terminally; dorsal scute small, confined to anterior slope; palps yellow brown; pedal femora basally brown, I distally yellow brown, II–IV, brown. Cheliceral fang mound low with line of *ca.* 12 long curved serrated bristles for cheliceral width. Spines: tibiae and metatarsi I, II with 2 pairs long thin spines ventrally. Tracheal scute small, lenticular. Epigyne: CO angular, oval, just over one diameter apart.

Distribution and Habitat. Known from rainforest at Hinchinbrook Island, and Mission Beach, Innisfail and Mareeba, northeastern Queensland.

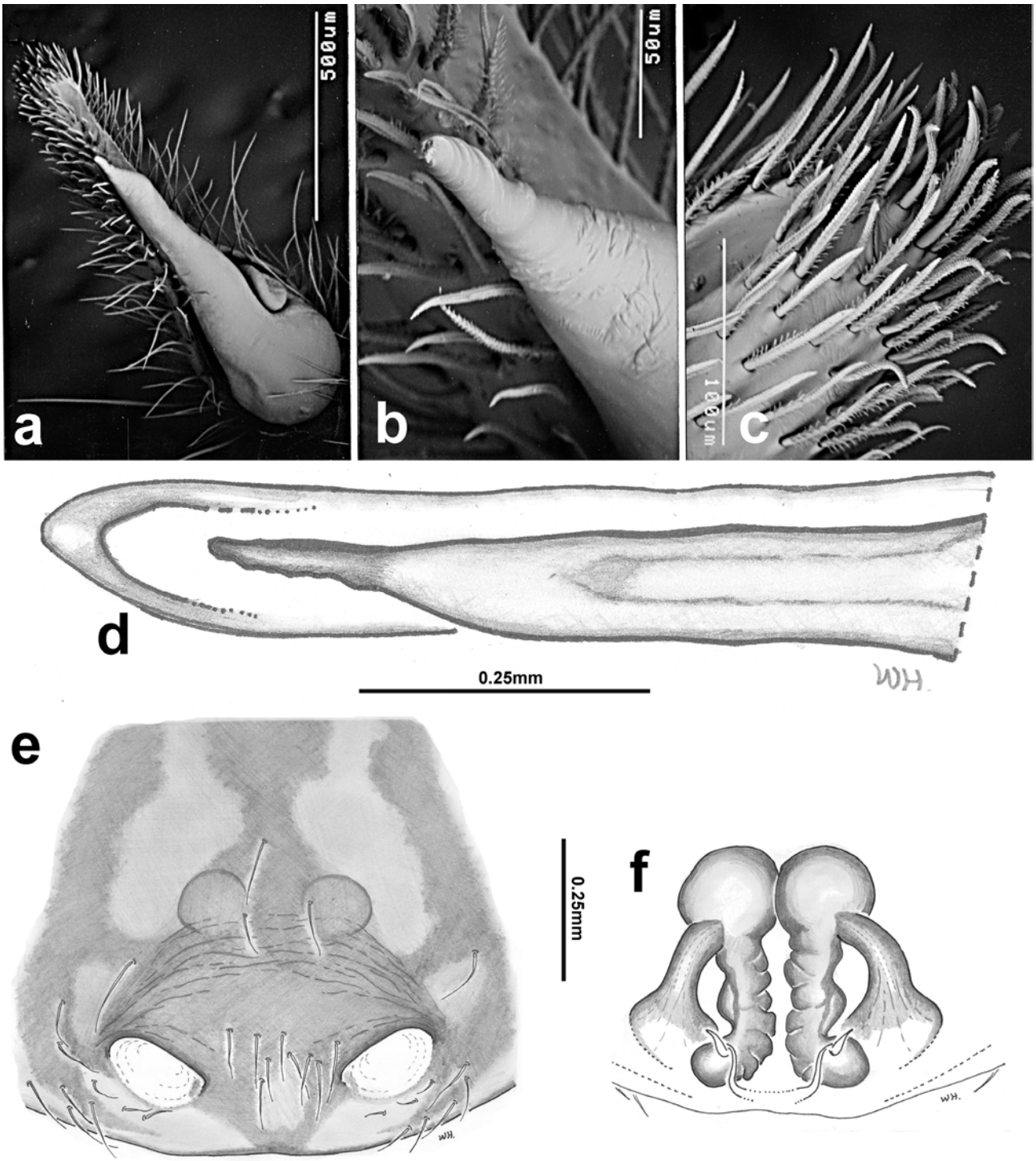


FIGURE 52. *Kolora lynneae* sp. nov., scanning electron micrographs, holotype male, QM S28409, a–d: a, palpal bulb and cymbium, ventral view; b, embolus tip, ventral view; c, cymbium tip showing curved apical claw-like spines, retrolateral view; d, embolus tip, retrolateral view; e, f, allotype female, AM KS52061, epigyne, external (e), and internal (f).

Leichhardteus Raven & Baehr, 2013

Leichhardteus Raven & Baehr, in Baehr & Raven, 2013: 340. Type species by original designation, *Leichhardteus conopalpis* Baehr & Raven, 2013.

Diagnosis. Females differ from those of *Battalus* in lacking the strong setae on the fang shield and the posterior lobe of the spermathecae is not smooth walled but folded (e.g., Fig. 62b); males differ from those of *Battalus* and *Corinnomma* in the inornate embolus tip, the weak or absent paracymbial spine and in all, save for *L. strzelecki* sp. nov. and *L.kroombit* Baehr & Raven, 2013 (Fig. 59e), in the presence of a mound or spur retrobasally on the palpal femur (e.g., Figs 53c, 61d).

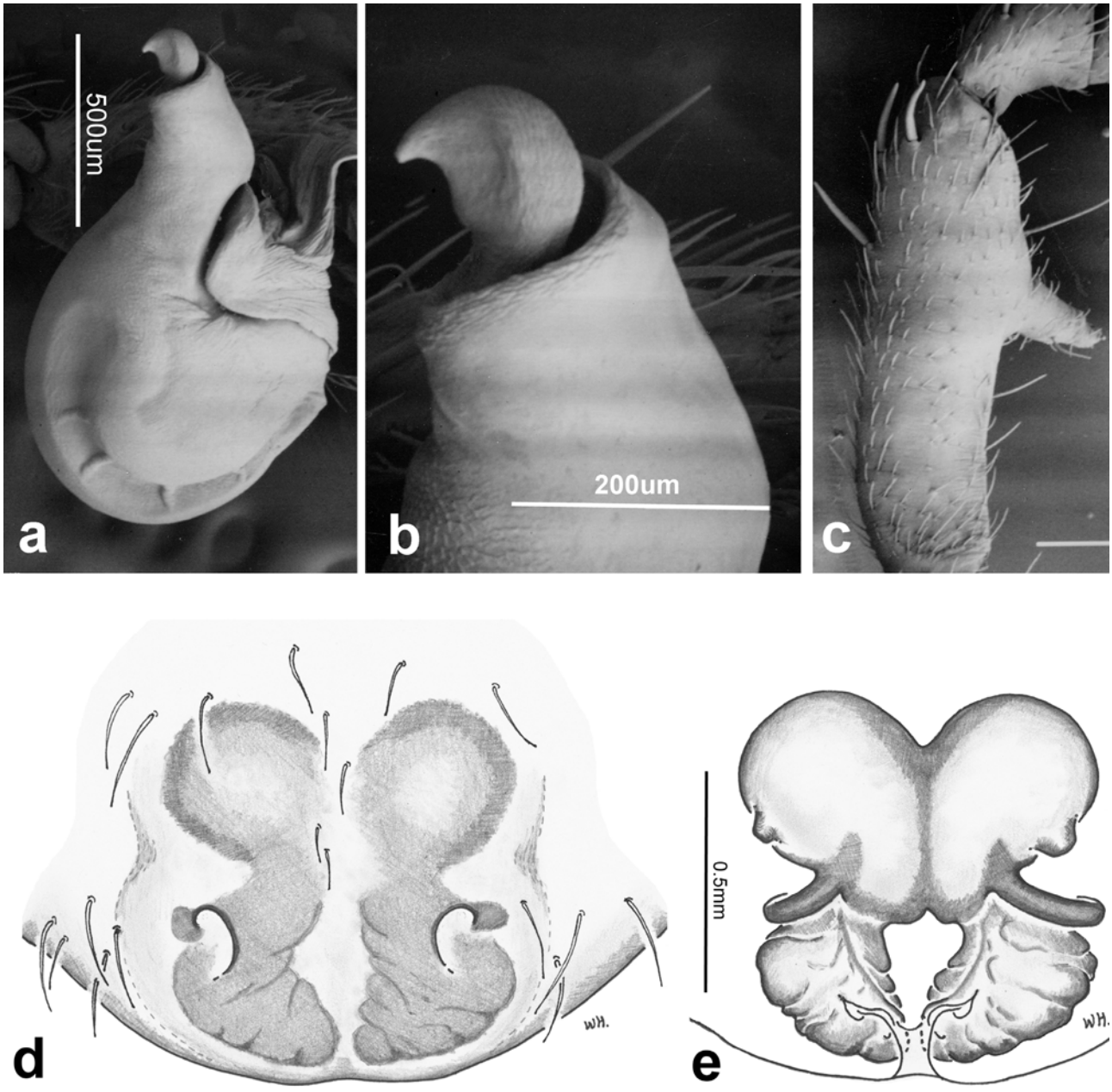


FIGURE 53. *Leichhardteus conopalpis* Baehr & Raven, 2013, scanning electron micrographs. Male, a–c: palpal bulb, ventral view; embolus tip, ventral view, palpal femur, prolateral view. Female: epigyne, external (d), and internal (e).

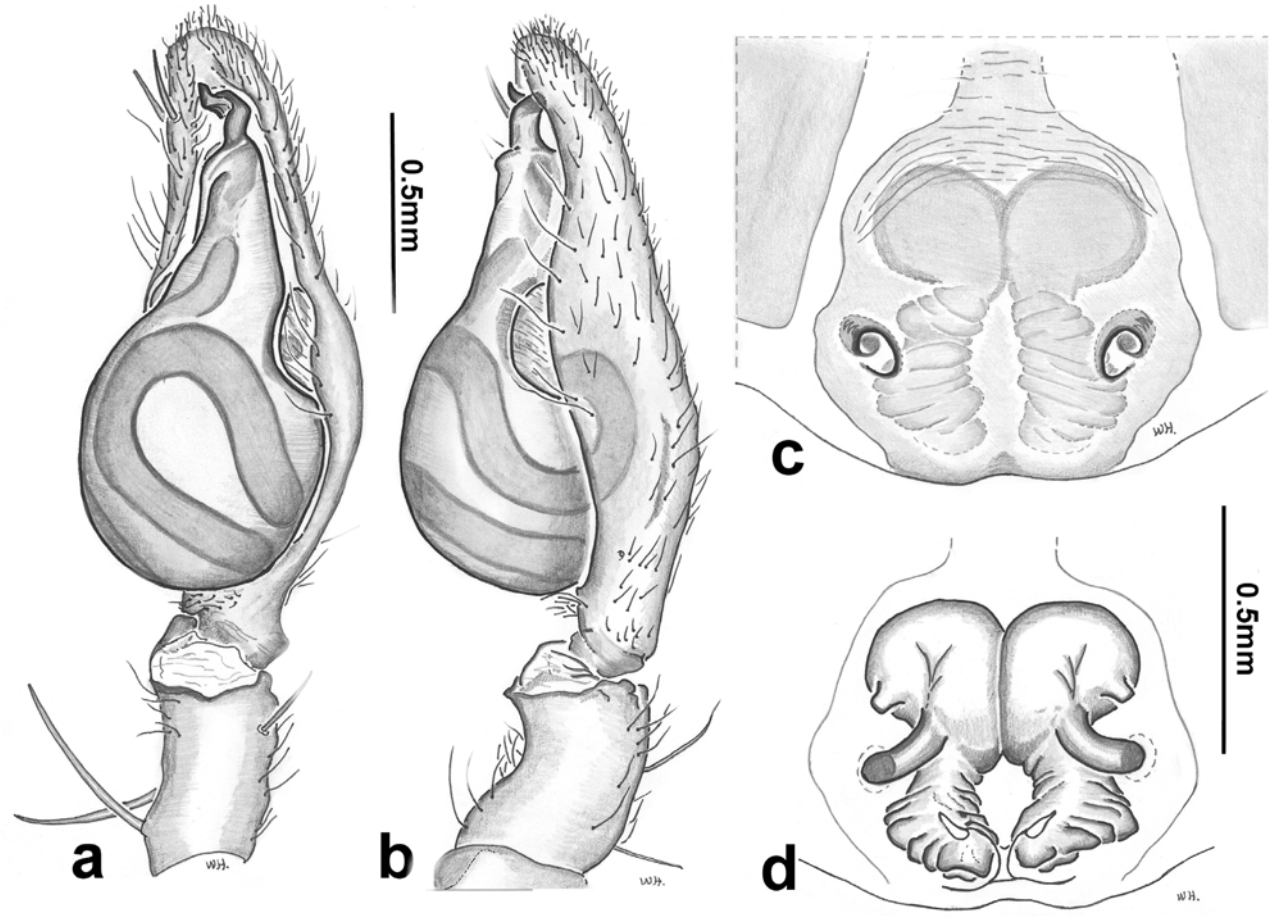


FIGURE 54. *Leichhardteus badius* Baehr & Raven, 2013: male, QM S39047: palpal tibia, bulb and cymbium, ventral (a), and retrolateral (b) views. Female, QM S59047: epigyne, external (c), and internal (d).

Description. Females lack strong setae on fang shield, a low plate with weak setae. Lateral profile of carapace (Fig. 2b): caput arched anteriorly, sloping through slight arch in shallow slope from fovea along posterior declivity; highest point just behind eye group; eyes set behind clypeus edge. Retrolateral face of large chelicerae smooth. Eight eyes in two rows of similar width; front row recurved, back row procurved (Fig. 16d). AME much larger than PLE larger than ALE larger than PME. Maxillae basally truncate, ectal margin slightly convex, with rounded apex and pallid truncation on anterior inner corners. Labium as wide as long, shield-shaped. Sternum shield-shaped without precoxal sclerites and not continuous with pedicel. Legs: I about same size as IV; leg lengths 4123, coxae entally rounded with slight retrobasal process. RCH small, distinct. Trochanters symmetrically notched about twice as wide as deep, similar on all legs. No feathery hairs on legs; covered mostly with bristles, not hairs. Tarsi cylindrical for length. Tibiae I and II with 3–4 pairs of spines ventrally; metatarsi I and II with two pairs ventrally. Female palp: tarsus with one distal pair of spines ventrally; no spines ventrally on femur. Trichobothria on tarsi and metatarsi few, short, distal; tibiae with cluster of trichae basally. Claws: two, enclosed in short dense tufts; claws and tufts on legs I and II very small, lower than diameter of tarsi; claws longer with few small teeth on legs III and IV. Scopula a fringe of short hairs on ventral tarsi I–IV and distally on all metatarsi. Abdomen: males with small to large oval dorsal scute (e.g., Fig. 57d); venter only with genital scute; females with small oval scute dorsally and tracheal scute small, ovoid with rounded ridge. Epigyne (Figs 56c, 58c): externally a domed plate, longer than wide with lateral subdistal crescentic hoods opening posteriorly, from which copulatory duct sweeps behind large dumbbell lobes of spermathecae. Paragenital brackets present or absent.

Males. Palp: femur with spur ventrally just distal of midpoint, varying from absent, subtle (Fig. 59e) to horn-like (e.g., Figs 53c, 61d); tibia cylindrical but with distinct glabrous saddle distoventrally for half of prolateral edge (Fig. 59f) where small process interlocks with ovoid depression on opposed cymbial edge (Fig. 55b–e); cymbium with sinuous retrolateral margin (Fig. 55c, d) and conical apical tip; paracymbial spine absent or vestigial (Figs

57b, 58b) to long, slender (Fig. 56b); typical simple castianeirine bulb with enlarged basal part of tegulum; sperm duct folds back strongly toward embolus then reflexes back sharply; sclerotised collar, round base of short embolus with reflexed flattened apex; no cymbial scopula.

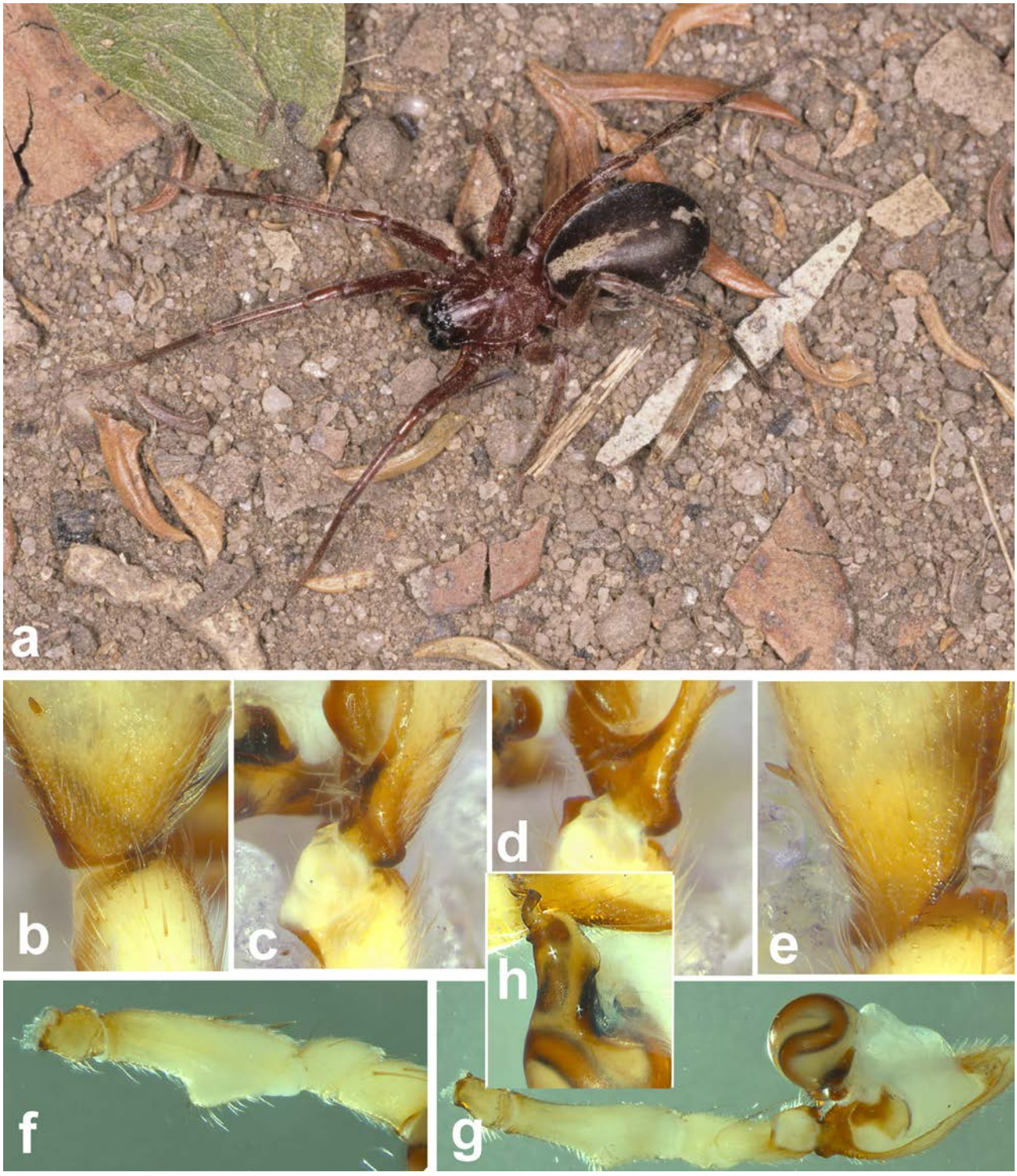


FIGURE 55. *Leichhardteus albofasciatus* Baehr & Raven, 2013: a, habitus female; b–h, male, palpal tibia, bulb and cymbium, dorsal (b), retrolateral (c), retroventral (d), and prodorsal (e) views; femur, patella & tibia, prolateral view (f), ventral view (g) with bulb; h, bulb tip, retrolateral view.

Distribution and Habitat. Coastal areas of eastern, southern and Western Australia. In eastern Australia, the spiders are found in rainforest, semievergreen vine thicket, and open forest. In southern and western Australia, the spiders are found in mallee, heath and open forest.

Species Included: *Leichhardteus albofasciatus* Baehr & Raven, 2013, *L. badius* Baehr & Raven, 2013, *L. bimaculatus* Baehr & Raven, 2013, *L. conopalpis* Baehr & Raven, 2013, *L. evschlingeri* sp. nov., *L. garretti* Baehr & Raven, 2013, *L. kroombit* Baehr & Raven, 2013, *L. reinhardi* Baehr & Raven, 2013, *L. strzelecki* sp. nov., *L. yagan* sp. nov. and *L. terriirwinae* Baehr & Raven, 2013.

Remarks. Baehr & Raven (2013) diagnosed the genus by the femoral prong on the palp of males (e.g., Figs 53c, 61d). However, save for the prong, which becomes marginal in some species, *L. strzelecki* sp. nov. fits well into *Leichhardteus*. Species descriptions are expanded to allow comparison to other genera.

Key to species of *Leichhardteus*

Males

1. Palpal femur ventrally with high conical or pointed prong (Fig. 57c) . . . 2
   Palpal femur ventrally with low mound (Fig. 55f) or prong absent (Fig. 59e) . . . 6
2(1). Femoral prong with abrupt basal angle junction with femur (Fig. 57c) . . . 3
   Femoral prong with gradual curving junction with femur (Baehr & Raven, 2013, fig. 7I) . . . *L. garretti*
3(2). Paracymbial spine small but distinct (Figs 55e, 56b) . . . 4
   Paracymbial spine absent or a weak spine (e.g., Fig. 57b) . . . 5
4(3). Femoral prong clearly triangular (Baehr & Raven, 2013, fig. 10G) . . . *L. terriirwinae*
   Femoral prong slender, almost digitiform (Fig. 57c) . . . *L. evschlingeri*
5(3). Femoral prong low as wide, basally as high, retrolateral (Fig. 61d) . . . *L. yagan*
   Femoral prong high (Fig. 53c) . . . *L. conopalpis*
6(1). Paracymbial spine absent (Fig. 54b) . . . 7
   Paracymbial spine small but distinct (Fig. 60f) . . . 8
7(6). Femoral prong absent or very indistinct . . . *L. strzelecki*
   Femoral prong distinct (Baehr & Raven, 2013, fig. 5H) . . . *L. badius*
8(6). Four pairs (distal may be much shorter) of paired spines on ventral tibiae I and II; femoral prong low but well demarcated (Baehr & Raven, 2013, Fig. 9I) . . . 9
   Three pairs of paired spines on ventral tibiae I and II; femoral prong indistinct, subtle or not well demarcated (Fig. 59e) . . . *L. kroombit*
9(8). Abdomen dorsally entirely black, without white spots (Baehr & Raven, 2013, fig. 9A) . . . *L. reinhardi*
   Abdomen with white spots or pallid median band . . . 10
10(9). Abdomen dark with two large white spots (Baehr & Raven, 2013, fig. 6A) . . . *L. bimaculatus*
   Abdomen dark with longitudinal irregular median band (Fig. 55a) . . . *L. albofasciatus*

Females (females of *L. bimaculatus, L. evschlingeri* sp. nov., *L. strzelecki* sp. nov. and *L. terriirwinae* unknown)

1. Four pairs of spines on ventral tibiae I and II . . . 2
   Three pairs of spines on ventral tibiae I and II . . . 6
2(1). Posterior spermathecal lobe smaller than anterior (Fig. 53e) . . . 3
   Posterior spermathecal lobe similar size to anterior (Fig. 62b) . . . 4
3(2). CO directed anterolaterally (Baehr & Raven, 2013, fig. 7L) . . . *L. garretti*
   CO directed posterolaterally (Fig. 53d) . . . *L. conopalpis*
4(2). CO very small, 6 diameters apart (Fig. 56c) . . . *L. albofasciatus*
   CO larger, 2–5 diameters apart (Fig. 62a) . . . 5
5(4). CO 4–5 diameters apart (Fig. 62a) . . . *L. yagan*
   CO 2–3 diameters apart (Baehr & Raven, 2013, Fig. 9J) . . . *L. reinhardi*
6(1). CO relatively wider apart (Fig. 54c) . . . *L. badius*
   CO relatively closer (Fig. 58c) . . . *L. kroombit*

Leichhardteus conopalpis Baehr & Raven, 2013
(Fig. 53a–e)

Leichhardteus conopalpis Baehr & Raven, 2013: 351, figs 1, 2A, 3A–K, 11.

New Material. New South Wales: 1♂, Koorawatha National Park, 34°03'12"S, 148°35'28"E, Nov 2010, B. Baehr, AM KS11467; 1♀, Coolah Tops, 31.73°S, 149.983°E, 1000 m, 21 Nov 2008–16 Jun 2009, G. Monteith, F. Turco, QM S36206.

Diagnosis. Males differ from those of all other species by the long conical or triangular process (Fig. 53c),

much higher than wide basally, on the ventral femur of the ♂ palp, paracymbial spine absent. Females differ from those of *L. garretti* by the posterolaterally oriented copulatory opening (Fig. 53d).

Supplementary description male QM S31529. Carapace 3.76 long, 2.60 wide. Total length 8.6. Sternum: shield-shaped without precoxal sclerites and not continuous with pedicel. Legs: coxae entally rounded with slight retrobasal process. RCH small. Trochanters symmetrically notched about twice as wide as deep, similar on all legs. No feathery hairs on legs; covered mostly by bristles, not hairs. Tarsi cylindrical. Trichobothria: Tarsi & metatarsi with few (2–4 evident) short distally. Tibia with cluster of trichae basally. Spines: I: fe p1d3; ti v2.2.2.2; me v2.2. II: fe p2d3; ti p2v2.2.2.2; me v2.2. III: fe p3d3r3; ti p2d2r2v2.2.2; me p3r3v2.2.2. IV: fe p2d3r1; ti p2d3r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2; pa p1; ti p2. Scopula: fringe of short scopuliform hairs on ventral tarsi I–IV and for distal half (I and II) to one quarter (III and IV) of metatarsi. Abdomen: directly just above outer edge of booklung slit a small sclerotised spindle-like sigilla; also in ♀. Palp: femur with prominent cuticular thorn ventrally, just distal of midpoint. Tibia cylindrical but with distinct glabrous saddle distoventrally for half of prolateral edge where a small process interlocks with ovoid depression on opposed cymbial edge; cymbium with sinuous retrolateral margin and conical apical cone; paracymbial spine absent. Typical simple Castianeirine bulb with enlarged basal part of tegulum. Sperm duct folds back strongly toward embolus then reflexes back sharply. Sclerotised collar round base of short embolus with reflexed flattened apex.

Allotype female MV K4394. Carapace 4.18 long, 2.89 wide. Total length 8.2.

Like ♂ but: legs: tuft of dark hair around distal metatarsi III and IV. Spines: I: fe p1d2; ti v2.2.2.2; me v2.2. II: fe p2d2; ti p2v2.2.2.2; me v2.2. III: fe p2d3r2; ti p2d2r2v2.2.2; me p3r3v2.2.2. IV: fe p2d3r1; ti p2d2r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2; pa p1; ti p2; ta pv2. Palpal tarsus: bowed slightly, wider pre-apically with cluster of hairs dorsally; claw short, curved, bare. Abdomen: only with small oval scute dorsally. Epigyne: externally a domed plate, longer than wide with lateral subdistal crescentic hoods open posteriorly, from which copulatory duct sweeps behind large dumbbell lobes of spermathecae.

Distribution and Habitat. Known from chenopod scrubland near Renmark, South Australia and adjacent areas in Victoria and New South Wales.

Leichhardteus badius Baehr & Raven, 2013

(Fig. 54a–d)

Leichhardteus badius Baehr & Raven, 2013: 353, figs 2H, 5A–K, 11.

New Material. **Queensland**: 1♀, Bunya Mtns, 26°53'S, 151°36'E, rainforest, flight intercept trap, 1 Dec 1991–7 Jan 1992, D.J. Cook, QM S50416; 1♀, Perseverance Creek Forest Reserve, site 1, 27°21'S, 152°06'E, eucalypt woodland, 4 Dec 2003, QMP, QM S61198; 1♀, Binjour Plateau, Swains Rd, 25°32'S, 151°30'E, vine scrub, pitfall, 20 Dec 1997–26 Apr 1998, G. Monteith, QM S50407; 1♀, Blackbutt Ra summit, 5 km E Benarkin, 26°52'S, 152°11'E, rainforest, pitfall, 24 Nov 1995–3 Feb 1996, G. Monteith, QM S50415; 1♀, Toowoomba, 27°34'S, 151°57'E, litter, 11 Oct 2003, R. Atkinson, QM S61047; 1♀, Split Yard Ck, 27°23'S, 152°38'E, vine scrub, human dung trap, 13 Jan–7 Apr 1999, G. Monteith, G. Thompson, QM S49983; 1♀, Bunya Mtns NP, Dandabah, 26°54'S, 151°34'E, sweeping/beating, 1–7 Mar 1976, V. Davies, L. Chapman, QM S29512; 1♂, Yarraman, Cooyar Ra, 26°52'S, 151°54'E, rainforest, flight intercept trap, 7 Jan–2 Mar 1992, D.J. Cook, QM S25023; 1♀, Yarraman, 26°51'S, 152°00'E, rainforest, flight intercept trap, 7 Jan–2 Mar 1992, D.J. Cook, QM S25006.

Diagnosis. Males differ from those of *L. bimaculatus* and *L. kroombit* in lacking a paracymbial spine (Fig. 54b); females differ from those of *L. kroombit* in the relatively wider separated copulatory openings (Fig. 54c).

Supplementary description holotype male QM S31555. Carapace 3.16 long, 2.47 wide. Total length 6.2. Like ♀ except as follows: spines: I: fe pv1d2; ti v2.2.2; me v2.2. II: like I but also ti p1. III: fe p2d3r2; ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r1; ti p2d1r2v2.2.3; me p3r3v2.2.3. Palp: fe p1d2; pa p1 weak; ti p2w. Palp: femur with long retrodistal bulge. Paracymbial spine entirely absent; bulb like *L. bimaculatus*.

Female. Based on allotype and QM S31545. Carapace 4.00 long, 3.06 wide. Total length 9.1.Colour: dorsal scute small, darker orange brown; genital scute orange brown. Carapace: light cover of feathery white hairs on interstrial ridges. Chelicerae: large, porrect; fang shield low. 3P, 2R. Sternum: with strong edge and inner groove, not pustulose. Slight precoxal thickenings opposite all coxae, precoxal sclerites only at I/II. Legs: coxae not

ventrally pustulose. RCH evident; all trochanters notched shallowly. Scopula on tarsi I–IV for distal half, divided on metatarsi I and II; sparsely setose; no feathery hairs evident. Spines: tibiae & metatarsi I and II with long tapering spines, 5–15% overlapping. I: fe p1d2; ti v2.2.2; me v2.2. II: fe p1d2; ti v2.2.2; me v2.2. III: fe p2d3r1; ti p2r2v2.2.2; me p3d3v2.2.3. IV: fe p2d3r1; ti p2r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d1 apical bristle; ti p2 basal; ta p2r1v3 distal. Claws: short dentate, few long spatulate hairs just above it. Claw tufts bigger on IV than on I. Abdomen: small, triangular dorsal scute from front just onto dorsal surface; no ventral scute; genital scute with distinct paragenital brackets extending laterally over distal booklung margin; tracheal scute small, ovoid with rounded ridge. Epigyne: broad, domed with paired spiralled lateral fossae.

Distribution and Habitat. Known only from rainforest in the Bunya Mtns and Yarraman, Southeast Queensland.

Leichhardteus bimaculatus Baehr & Raven, 2013

(Fig. 16d)

Leichhardteus bimaculatus Baehr & Raven, 2013: 354, figs 2C, 6A–H, 11.

Diagnosis. Males differ from those of *L. kroombit* in the lateral bulge on the palpal femora, a deeper groove in between distal embolus ridges, the abdomen with three white spot pattern dorsally, and three large white slashes laterally, and distinct distal bands on femora II–IV. Female unknown.

Supplementary description holotype male QM S14709. Carapace 3.23 long, 2.28 wide. Total length 6.5. Colour: abdomen dorsally black brown with paired irregular oval areas medially and white spot just above spinnerets, laterally with two large contiguous white spots near trochanter IV, posteriorly a large and small white curved tapering slash; ventrally, genital scute orange brown, medially a light brown rectanguloid bounded laterally by a series of white spots, anteromedially a pallid area. Carapace: finely rugose, almost glabrous with serrate or pustulose margin; fovea short, near coxae II/III. Fine hairs laterally on caput with long incurved bristles on clypeus. Chelicerae: with distinct produced fang shield; 3P, 2R, middle largest. Maxillae: with distinctly elevated long ovoid rugose mound for half ventral length. Legs: RCH basal, small, distinct. Coxae II–IV with distinct anterior basal process. Lightly pustulose. Feathery hairs not evident. Trochanters with short shallow notches. Lightly setose. Spines: as for *L. conopalpis*, but on tibiae and metatarsi spines strong paired, slightly overlapping on tibiae, otherwise: I: fe p1d2. II: fe p1d2; ti p2. III: fe p2d3r2; ti p2d2r2. IV: fe p2d3r1; ti p2d2r2. Palp: fe p1d2; ti proventral 1 long basal. Claws: with tufts larger on IV than on I; tufts shallow but high, claws just lower than dentate claws. Abdomen: scutes: dorsal darkly sclerotised and narrow for 3/4 length; no ventral; genital, strongly sclerotised with thick anterior edge but no collar; tracheal, broad triangular, spiracle marked by short procurved slit. Genital aperture marked by wide sclerotised rectangle. Pedicel: sclerotised dorsally with two transversely banded edges off abdomen. Two long bristles project forward from abdomen just above pedicel. Spinnerets: small triangular setose colulus. PLS less than half diameter of ALS. Palp: femur subdistally incrassate, bulge more prominent retrolaterally, most evident viewed ventrally; bulb like *L. kroombit* but with deeper groove between distal embolic ridges; cymbium like *L. kroombit*.

Distribution and Habitat. Known only from rainforest at Conway Range National Park, mideastern Queensland.

Leichhardteus albofasciatus Baehr & Raven, 2013

(Figs 2b, 55a–h, 56a–d)

Leichhardteus albofasciatus Baehr & Raven, 2013: 353, figs 2F, 4A–K, 11.

Diagnosis. Males differ from those of *L. conopalpis* in the smaller femoral mound (Fig. 55f, g) and embolus tip and from the sympatric *Copa kabana* sp. nov. in the abdominal and leg patterns. Females differ from those of all other species in the pallid medial stripe on the dorsal abdomen brown (Fig. 55a) and from *L. reinhardi* in the small relatively widely spaced copulatory openings (Fig. 56c).

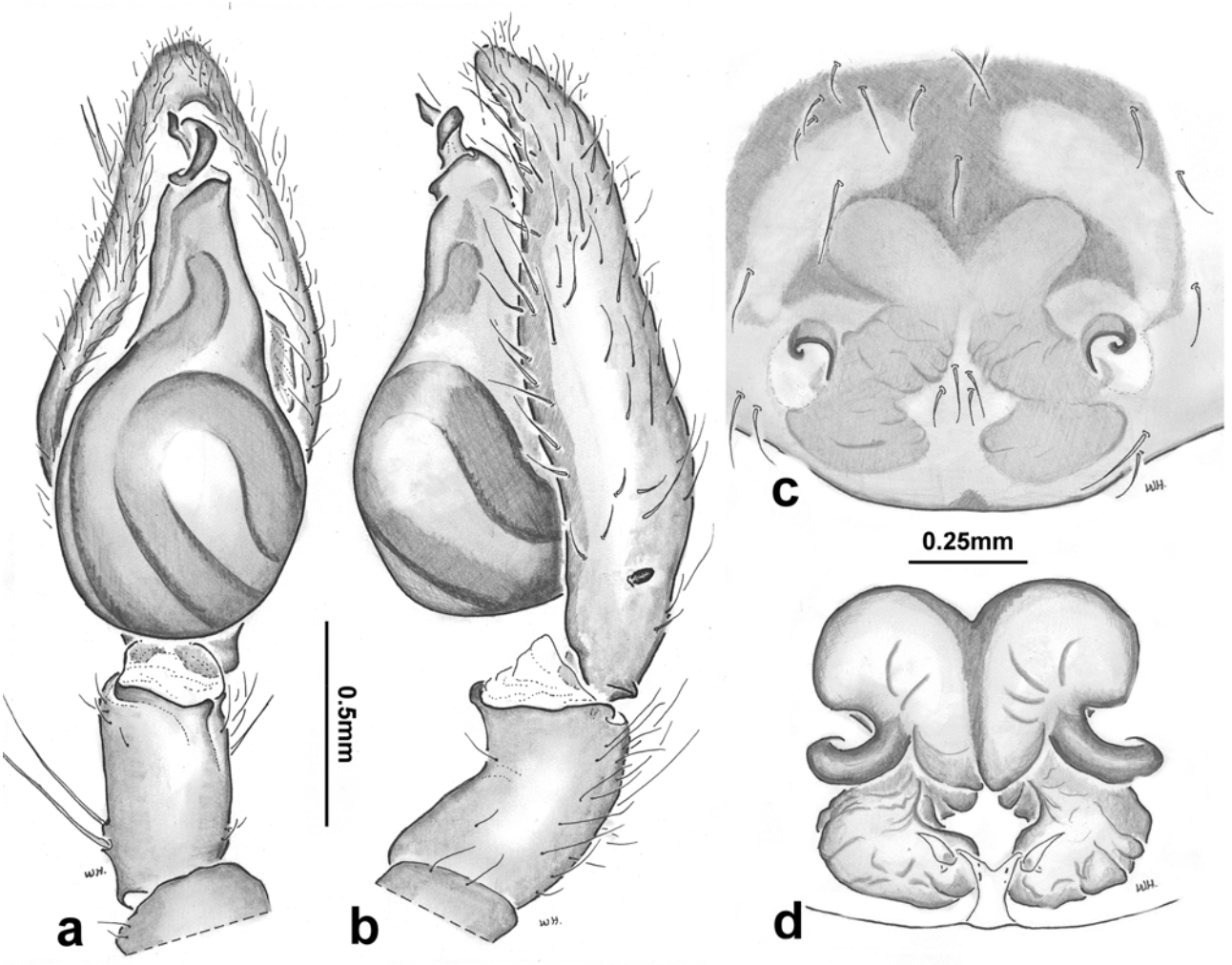


FIGURE 56. *Leichhardteus albofasciatus* Baehr & Raven, 2013: male, QM S31537: palpal tibia, bulb and cymbium, ventral (a) and retrolateral (b) view, both mirrored. Female, QM S76352: epigyne, external (c), and internal (d).

Supplementary description holotype male and QM S31537. Carapace 3.29 long, 2.51 wide. Total length 6.3. Colour: abdomen dorsally brown with pallid medial band widening from anterior face to highest point, then at *ca.* 2/3 abdomen length it widens with a series of paired laterally triangular extensions (five), each one smaller than one in front; ventrally with brown central zone from booklung to spinnerets, that flanked by irregular white zone rising above booklungs anteriorly; leg IV darker than others; no bands or dark marks evident on any legs; carapace with dark narrow border. Carapace: light cover of fine feathery hairs, especially near eyes, and fine black bristles. Eyes: AME clearly the largest. Chelicerae: vertical, rounded; fang shield distinct, low with bush of long curved brown bristles. Sternum broadly cordate, indented behind labium, with small intercoxal projections. Pedicel (from below) separate from sternum a triangular collar. Legs: coxae I–III with distinct anterior and posterior basal processes; trochanters with shallow but distinct notches; feathery hairs (fine dark) lateral on femora, ventral and lateral on patella to metatarsi. Tarsi I–III with weak scopula ventrally. Claws: *ca.* five teeth set behind tufts; tufts all similar in size. Spines, long, strong: I: fe pv1p1d2; pa 0; ti v2.2.2.2; me v2.2. II: fe pv1p2d2r1; pa 0; ti p2v2.2.2.2; me v2.2. III: fe pv1p2d4r4; pa 0; ti p2d1r2v2.2.2; me p3r3v2.2.2. IV: fe p3d3r3; pa r1/0; ti p3d1r3v2.2.2; me p3r4v2.2.2. Palp: fe p1d1; pa p1; ti p2. Abdomen: covered with dark feathery hairs; dorsal scute absent; genital scute confined laterally to edge of booklungs, no anterior collar; tracheal spiracle a low sclerotised nipple. Spinnerets: PLS small, no bigger than PMS but two-segmented; only one enlarged spigot on inner ALS; no enlarged spigots on PMS or PLS. Palp: femur with large mound on retrolateral distal corner; tibia with deep subdistal proventral saddle forming ridge of distal tibial margin; prolaterally with low process inserting into cavity on opposed cymbial edge; bulb (both sides) expanded; cymbium with prolateral thickening; apical cone asymmetrically grooved; retrodorsal corner with shallow saddle with basal ridge forming cymbial edge; distal of saddle a small erect paracymbial spine on low mound, with wide basal and narrow lateral margins; apical cone

grooved to tip with short subapical spine on prolateral edge, slight cluster of hairs dorsally on cymbium tip; bulb with large scooped sclerotised plate in basal haematodocha; subtegulum disc-like, extending to prolateral edge and indenting slightly into tegulum on retrolateral edge; sperm duct folds deeply twice over tegulum and sinuous up to embolus; embolus a short low spiralled ridge twisting tightly to grooved tip.

Female Allotype. Carapace 3.84 long, 2.87 wide. Total length 9.6.Chelicerae: line of 8–10 long, strong serrate bristles on fang mound. Spines: I: fe p1d2; pa, 0; ti v2.2, me v2.2. II as for I but fe p1d3. Tracheal scute a conical papule.

Distribution and habitat. Widespread in rainforests through southern Queensland: known from Conondale Range, Kroombit Tops, Lamington National Park, Brookfield, Gold Creek Reservoir, and Mt Tamborine.

FIGURE 57. *Leichhardteus evschlingeri* sp. nov., holotype male, WAM 98/1634: a, embolus tip, ventral view; b, cymbium, retrolateral view showing paracymbial spine; c, femur, patella, tibia, cymbial and bulb, retrolateral view; d, habitus male.

***Leichhardteus evschlingeri* sp. nov.**
(Fig. 57a–d. Map 28)

Material. Western Australia: holotype ♂, Eucla, 31°43'S, 128°54'E, Feb 1998, WAM 98/1634.

Diagnosis. The male differs from those of *L. conopalpis* in the presence of a paracymbial spine (Fig. 57b, c) and from those of *L. terriirwinae* in the slender, almost digitiform femoral prong on the palp (Fig. 57c). Female unknown.

Etymology. The species epithet is in honour of the late Dr Evert Schlinger (1928–2014), international authority on spider-parasiting flies of the family Acroceridae and who funded research in entomology, including, through his foundation, five endowed chairs in entomology and arachnology in the United States and Australia.

Description holotype male WAM 98/1634 (like *L. conopalpis* except as follows)

Carapace 3.92 long, 2.72 wide. Abdomen 3.84 long, 3.12 wide. Total length 8.2.

Colour: carapace and legs yellow orange; carapace with dark sash through eyes, posteriorly breaking into reticulate lines joining at fovea; chelicerae dark brown; legs orange yellow, leg IV from tibia darker; abdomen brown with large, posteriorly indented oval scute dorsally for just over half length; behind that a pallid central band; venter with yellow orange genital scute; light brown centrally with brown flanks; sternum yellow orange; maxillae and labium sepia. Carapace: with radiating lines of fine black setae. Legs: fine feathery hairs dorsally on femora. Spines: I: fe pv1p1d2; ti v2.2.2.2; me v2.2. II: fe p2d2; ti p2v2.2.2.2; me v2.2. III: fe p2d3r2; ti p2d2r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r1; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1w; ti p2w. Claws: enclosed in short dense tufts; claws and tufts on legs I and II as high as distal diameter of tarsi; tufts and claws

higher and longer with 3–4 small teeth on legs III and IV. Palp: femur with prominent cuticular thorn ventrally, just distal of midpoint; cymbium with sinuous retrolateral margin and conical apical tip; thin, short, lanceolate paracymbial spine; sperm duct folds back almost to embolus base then reflexes back sharply; sclerotised ridge round base of short embolus with promargin folding to form beak-like apex.

Distribution and Habitat. Known only from Eucla, near the southern end of the border of South Australia and Western Australia.

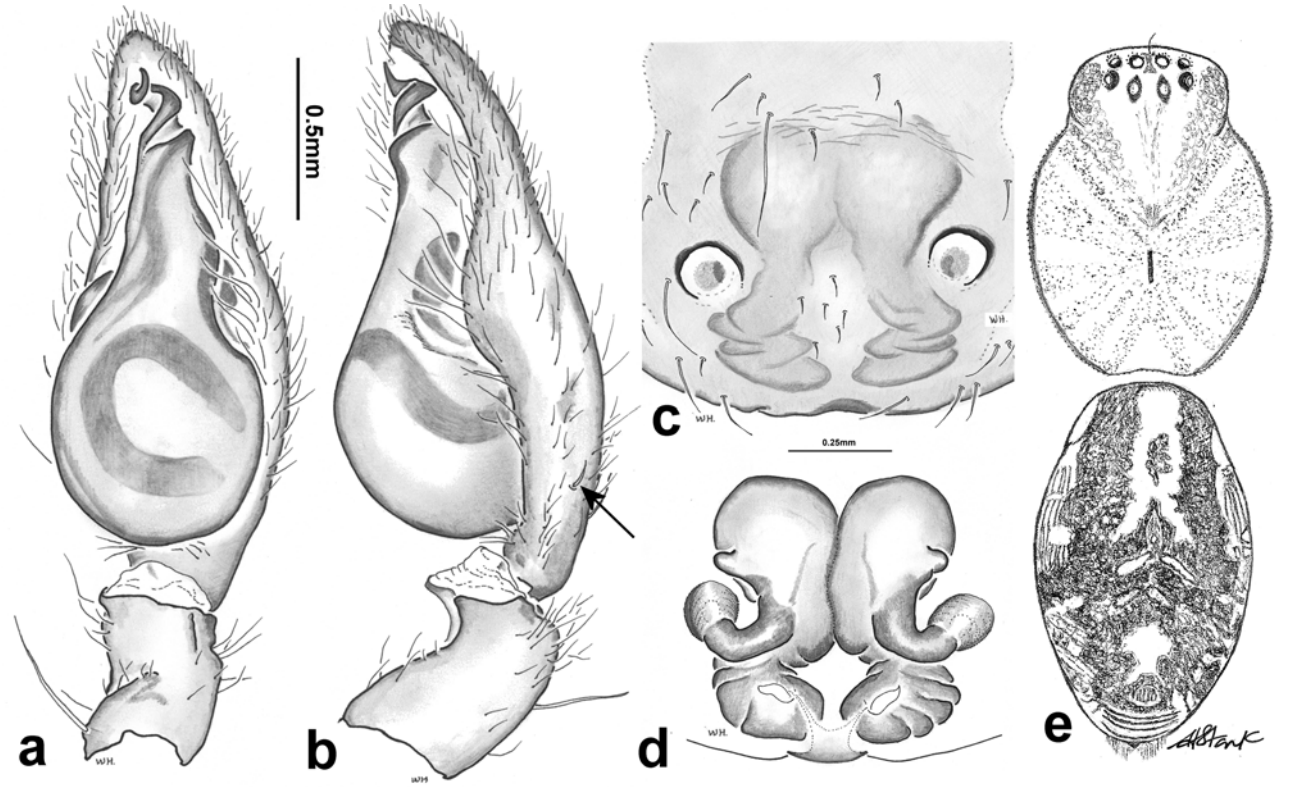


FIGURE 58. *Leichhardteus kroombit* Baehr & Raven, 2013: male, QM S31541: palpal tibia, bulb and cymbium, ventral (a) and retrolateral (b) views. Female, QM S31542: epigyne, external (c), and internal (d); e, habitus.

Leichhardteus kroombit Baehr & Raven, 2013

(Figs 8b, 58a–e, 59a–g)

Leichhardteus kroombit Baehr & Raven, 2013: 355, figs 2D, 8A–K, 12.

Diagnosis. Males differ from those of *L. albofasciatus* in the mild enlargement of the male palpal femur (Fig. 59e) and pustulose carapace, sternum and femora. Females differ from those of *L. badius* in lacking the long abdominal stripe and the copulatory openings on the epigyne are only 2–3 diameters apart (Fig. 58c), rather than about 4 diameters apart.

Supplementary description, holotype male QM S31541. Carapace 3.95 long, 2.76 wide. Total length 7.4. Carapace: finely pustulose with well defined striae offset by fewer short white feathery hairs; fovea closed set between coxae III and IV. Caput slightly raised; margins with almost uniform series of horizontal pustules; few fine bristles on clypeus margin. Chelicerae: vertical, fang shield low indistinct; retrobasal ridge small. Sternum: cordate with intercoxal projections at I/II and II/III; surface with uniform cover of dark brown pustules each bearing short, pallid, feathery hairs; light cover of long erect brown bristles; sclerotised hole below carapace between each coxae; narrow sclerotised bands between coxae III and IV. Legs: RCH small, pallid; basal coxal projections wide anteriorly, narrow posteriorly; trochanters with distinct shallow notches, *ca.* 2–2.5 times wider than deep. Scopula: light in distal third of metatarsi I and II; distal preening brush (1/8) on metatarsi III and IV not scopula. Tarsi I–III with light distinct scopula, divided by setae on IV. Fine short pallid feathery hairs on femora, sparsely setose; femora laterally pustulose. Spines: all strong on tibiae and metatarsi I and II moderately long, not overlapping

almost contiguous. Patellae I–IV, 0. I: fe pv1p1d2; ti v2(weak).2.2; me v2.2. II: fe p1d2; ti v2(weak).2.2; me v2.2. III: fe p2d3r1; ti p2r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r1; ti p2r2v2.2.2; me p3r3v1.1.2.3. Palp: fe d2. Claws: dentate, larger on III, IV than I, II, claw tufts also larger. Abdomen: scutes: no dorsal or ventral; genital scute very thin, with wide paler unsclerotised area around genital area. Post-epigastric sclerites distinct. Tracheal spiracle ridge wide, not strongly sclerotised. Palp: femur slightly but distinctly incrassate subdistally; tibia with subdistal transverse groove forming sharp distal margin; distal process rounded; cymbium asymmetrical; lateral margins narrow, wide basally; apical cone grooved to tip without apical spines; no scopula dorsally; retrobasally with depression and distally with small distinct spine. Bulb: subtegulum evident prolaterally and retrolaterally beside shallow cymbial incursion; embolic division two broad spiralled ridges separated by groove; distal ridge wide, distinctly rugose, basal ridge less rugose; distal embolus twists to narrow ridged point, sperm duct deep with high set horse-shoe shaped curve in basal loop, folding back into tegulum and out to cuticle basally crossing to midpoint and sinuously to tip.

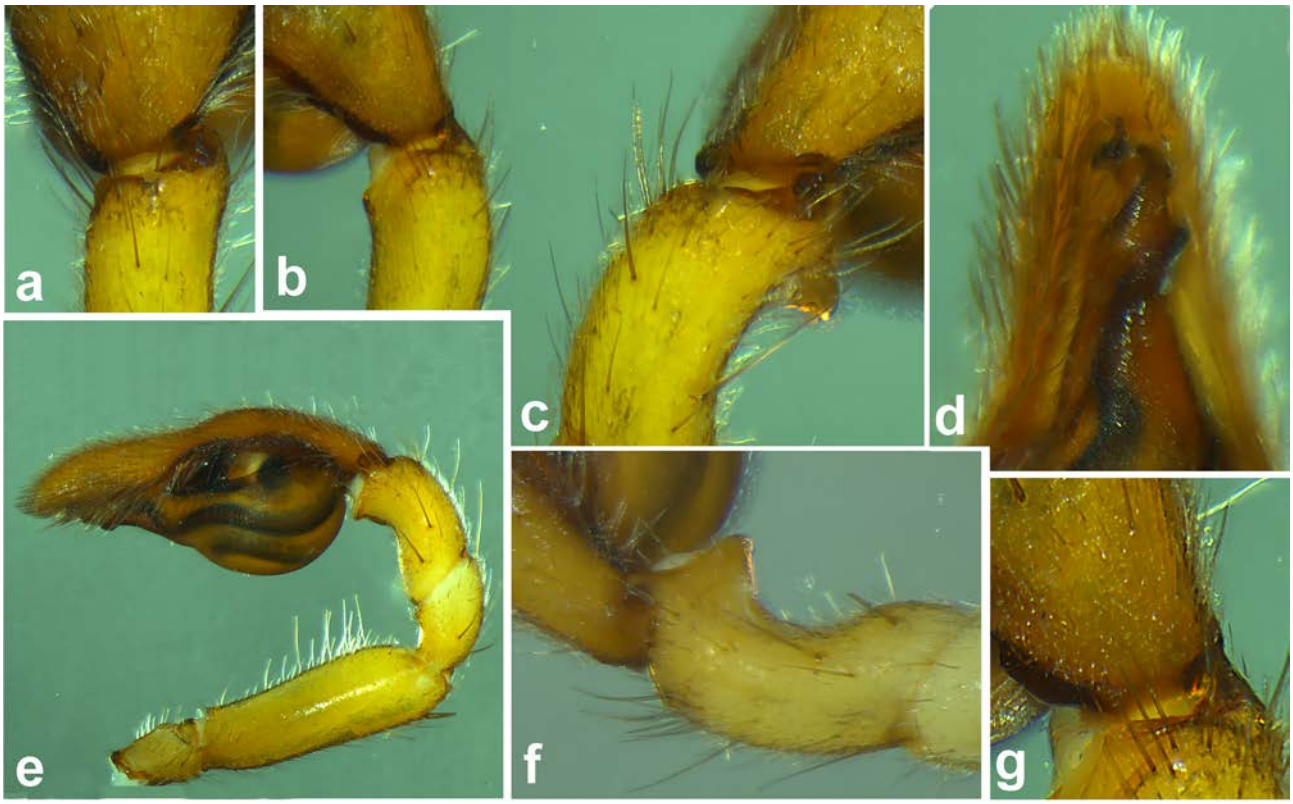


FIGURE 59. *Leichhardteus kroombit* Baehr & Raven, 2013, male palp, QM S29480: b–g, male, palpal tibia, bulb and cymbium, dorsal (a), retrolateral (b), and prolateral (c) views; d, embolus tip, ventral view; e, femur, patella, tibia, retrolateral view; f, tibia and cymbium, retrolateral view; g, tibia and cymbium, retrolateral view showing process on retroventral cymbium edge.

Allotype female. Carapace 4.62 long, 3.43 wide. Total length 9.7. As for ♂ except: caput more raised; chelicerae more porrect, fang shield distinct, rounded with long brown bristles. Legs like ♂ but spines: I: fe pv1d2; ti v(1).2.2.2; me v2.1.1 (v1.1). II: fe d2; ti v2.2.2; me v2.2. III: fe p2d3r1; ti p2r1(2) v2.2.1; me p3r3v2.2.3. IV: fe p2d3r1; ti p2r2v2.2.1; me p3r3v2.2.3. Palp: fe d2; pa p1 (weak); ti p2 basal; ta p1r1v3 distal; three ventral spines on palpal femur. Palp: claw short with three short teeth not obscured by hair; subdistally incrassate. Epigyne: laterally with pallid, less sclerotised area almost reaching to anterior collar of well defined genital scute; longitudinally and transversely domed with spiralled aperture on lateral margin. Abdomen: as with ♂, covered with small black feathery hairs; tracheal spiracle with short weakly sclerotised (dorsal scute a small subovate thin plate on anterior face) wide triangular zone; genital scute distinctly sclerotised with well defined edges but no anterior collar; small hirsute plate is presumably vestigial colulus. Spinnerets. ALS with ectal subfield with two larger MAMP spigots. PMS and PLS with three, two, respectively, large cylindrical gland spigots.

Distribution and Habitat. Known only from rainforest at Kroombit Tops, southeast Queensland.

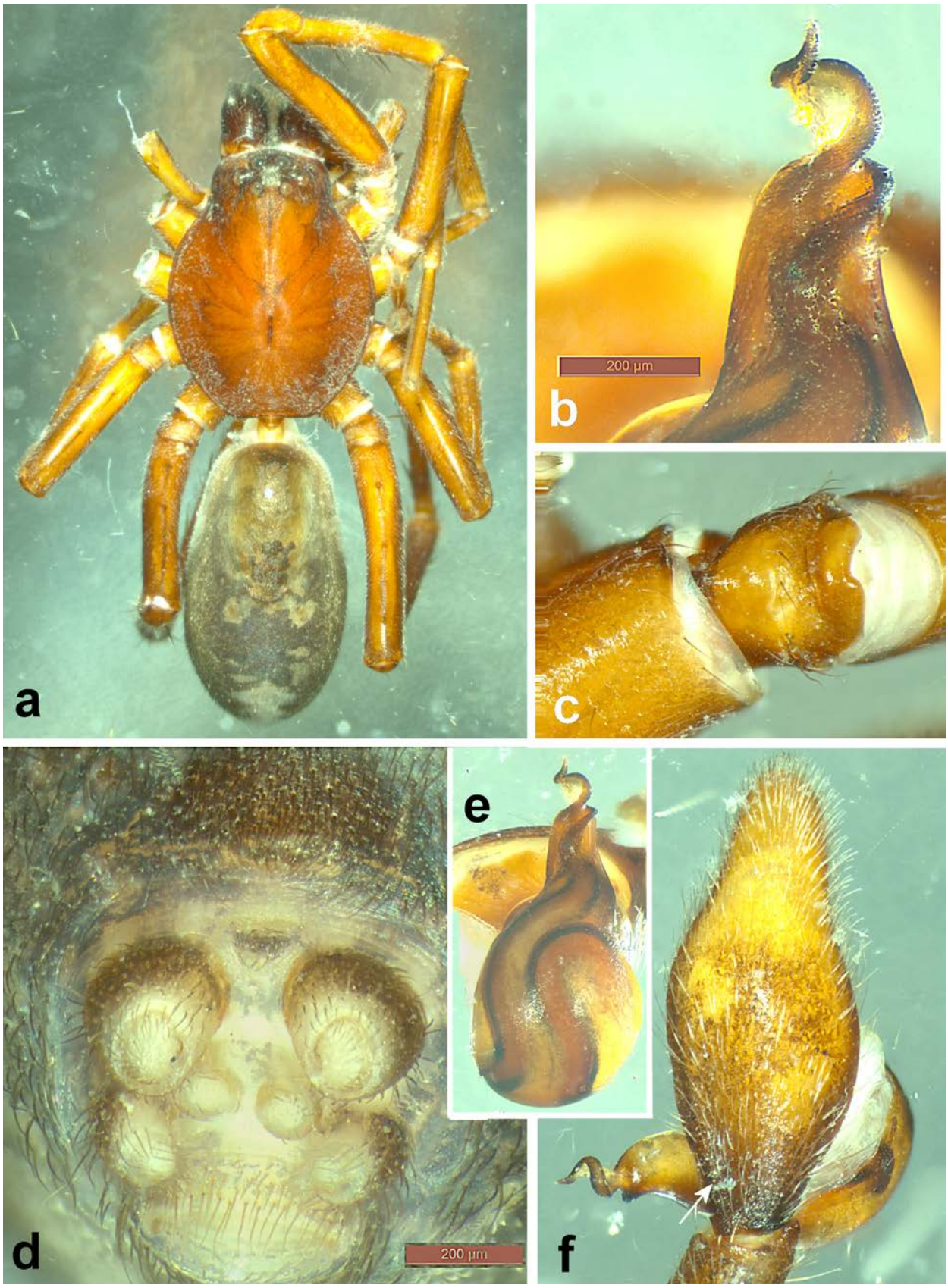


FIGURE 60. *Leichhardteus strzelecki* sp. nov., holotype male, MV K4440: a, habitus; b, embolus tip, ventral view; c, rebordered notched trochanter III, ventral view; d, spinnerets, ventral view; e, palpal bulb, ventral view; f, cymbium, dorsal view showing paracymbial spine (arrow).

***Leichhardteus strzelecki* sp. nov.**
(Fig. 60a–f. Map 29)

Material. Victoria: holotype, ♂, Strzelecki Range, Jeeralang West Rd, 0.1 km N Binns Hill Junction, 38°25'S, 146°28'E, 14 Nov 1995–10 Jan 1996, G. Milledge, MV K4440; paratype, 1♂, Kinglake National Park, Melbourne Field Naturalists Club, 26 Nov 1983, MV K12247.

Diagnosis. Males differ from those of all other species in lacking any noticeable enlargement of the ventral palpal femur; and from those of *L. kroombit* in the cymbium lacking any paracymbial spine (Fig. 60f) but with strong retrolateral ridge basally. Female unknown.

Etymology. The specific epithet is a noun in apposition from the Strzelecki Ranges, Victoria.

Description holotype male MV K4440

Carapace 3.56 long, 2.72 wide. Abdomen 3.71 long, 2.18. Total length 8.5.

Colour: carapace dark red brown with dark brown areas around eyes along caput edge and as U-shaped marks on interstrial ridges; chelicerae dark brown; legs red brown without bands; abdomen dorsally dark brown, dorsal scute orange brown with hairs, broken pallid patches medially and three diamond-shaped small areas of white hair just above spinnerets; ventrally, genital scute dark red brown, otherwise dark brown with broken white areas medially and two irregular lines of *ca.* 14 small sclerotised sigilla like spots. Carapace: light cover of white feathery hairs. Sharp serrate ridge on lateral margin. Eyes: AME slightly larger than others. Sternum: precoxal sclerites at III, IV; precoxal sclerites at I/II, II/III. Lacking intercoxal sclerotised band between III and IV. Legs: RCH present; femur IV distally unmodified; all trochanters with similar shallow distinct notches; feathery hairs on femora to metatarsi. Scopula weak on tarsi, in distal 1/5, divided on metatarsi I and II. Spines: as for genus but tibial spines almost overlapping, tapering, otherwise as follows. I: fe p1d2; ti v2.2.2; me v2.2. II: fe p1d2; ti v2.2.2; me v2.2. III: fe p1d3. IV: fe d3. Palp. fe d2; ti p2 long, weak, basal. Abdomen: scutes: dorsal extends for 1/3 length, ovoid; ventral absent; genital without weak zone or collar and weak leading edge; tracheal oval with wide curved ridge. Two lines of sclerotised sigilla medially. Small triangular colulus present. Palp: femur not mid-ventrally incrassate; tibia with groove; bulb expanded, large concave rectanguloid plate in basal haematodocha; cymbium without paracymbial spine but with strong retrolateral ridge basally, deeply excavate in distal cone, lateral margins on ridge; embolic portion with two close rugose spirals; sperm duct basally short, crook-shaped, then recurving back toward tip and arching around basal duct sinuously to tip.

Remarks. The inclusion of *L. strzelecki* sp. nov., which has no evident enlargement of the male palpal femur, requires the generic diagnosis to be amended. In the combination of the form of the bulb and especially the embolus tip, *L. strzelecki* sp. nov. unequivocally belongs in *Leichhardteus*, even if possibly the sister group of all other species.

Distribution and Habitat. Known only from Strzelecki Ranges and Kinglake, Victoria.

***Leichhardteus yagan* sp. nov.**
(Figs 61a–d, 62a, b, 135. Map 30)

Material. **Western Australia**: holotype ♂, Grasspatch (Fitz. Loc. 41), WA, 33°14'S, 121°43'E, 30 Nov 1991, A.F. Longbottom, WAM 98/1635. Paratypes: **Western Australia**: 1♂, Bandalup Hill, 33°38'S, 120°22'E, mallee/heath, Nov 1993, G. Harold, WAM 98/1636; 1♀ (allotype), mallee on clay, 6 Nov 1993, WAM94/1500; 1♂, Breeborinia Rock, 9 km SW, 33°06'S, 123°20'E, gimlet woodland litter (FN4), 23 Nov 1966, B.Y. Main, WAM 98/1638; 1♀, Yellowdine, 6 Nov 1973, W.H. Butler, WAM T121153.

Diagnosis. Males differ from those of *L. conopalpis* in the lower femoral thorn (Fig. 61d) and from females in lacking the dark caput.

Etymology. Yagan was an Aboriginal warrior of the Noongar people in south-western Australia; the name is taken as noun in apposition.

Description holotype male WAM 98/1635. Like *L. conopalpis*, except:

Carapace 3.29 long, 2.21 wide. Abdomen 3.09 long, 1.79 wide. Total length 6.9.

Colour: carapace orange brown with black eye region; abdomen dorsally dark brown with trapezoidal white area terminally; legs orange brown. Femora III, IV with subtle distal bump (Fig. 61a inset). Palp: femoral prong a

long equilateral triangle, directed distinctly retrolaterally (Fig. 61b); paracymbial spine absent; embolus tip corkscrew.

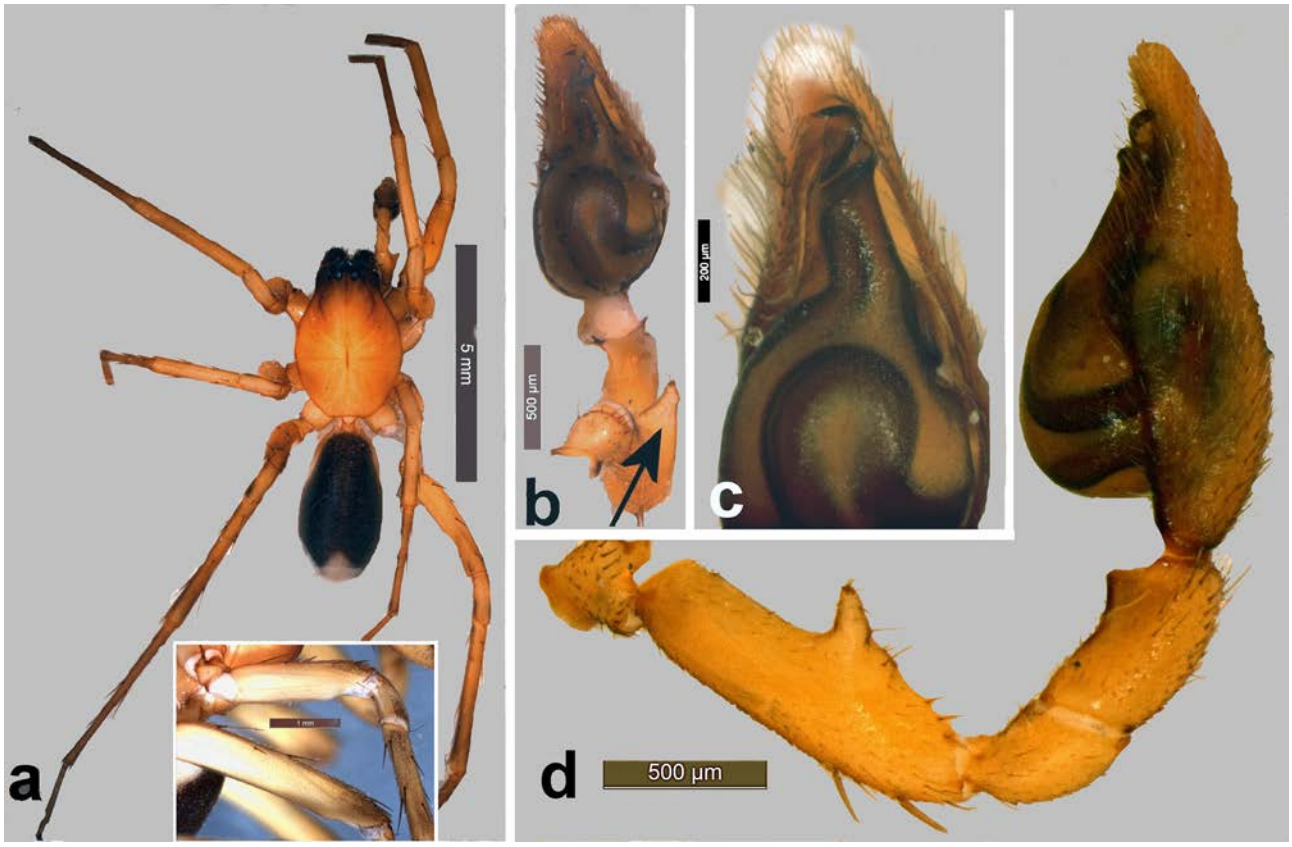


FIGURE 61. *Leichhardteus yagan* sp. nov., holotype male, WAM 98/1635: a, habitus, inset showing lateral femur IV without modification; b–d, male palp; b, femur, patella, tibia and cymbium, ventral view showing retroventral direction of femoral spur; c, distal bulb and cymbium, ventral view; d, femur, patella, tibia and cymbium, retrolateral view.

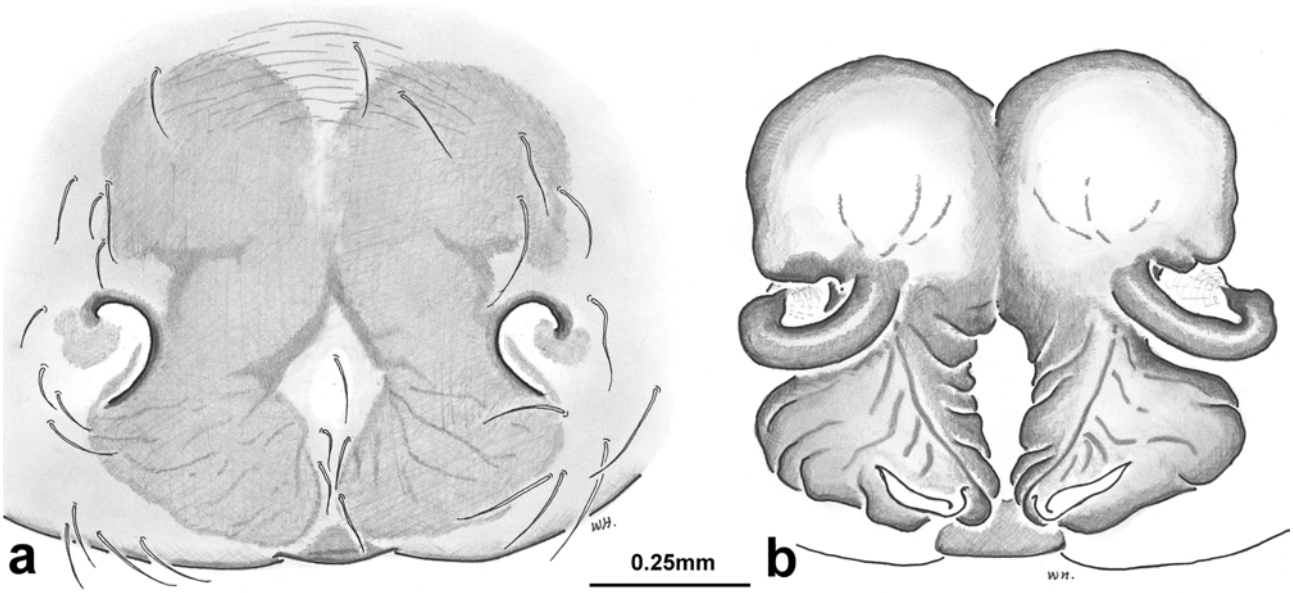


FIGURE 62. *Leichhardteus yagan* sp. nov., allotype female, WAM 95/1500: epigyne, external (a), and internal (b).

Allotype female (like ♂ except as follows) WAM 94/1500

Carapace 4.06 long, 2.94 wide. Abdomen 5.94 long, 3.56 wide. Total length, 11.3.

Colour: abdomen blue black with small, indistinct, oval scute dorsally and large white spot terminally; laterally a large white area anteriorly; venter with white area for anterior half of abdomen. Legs: fine feathery hairs on femora–tibiae. Spines: I: fe pv1p1d2; ti p2v2.2.2.2; me v2.2. II: fe p1d2; ti p2v2.2.2.2; me v2.2. III: fe p2d3r2; ti p2d2r2v2.2.2; me p3r3v2.2.3. IV: fe p1d3r1; ti p2d2r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1w; ti p2w. Epigyne: paragenital brackets present; externally a broad domed plate with small round fossae laterally.

Distribution and Habitat. Known only from localities in southwestern Western Australia in mallee and heath: Grasspatch, Bandalup Hill, and near Breeborinia Rock.

Leichhardteus garretti Baehr & Raven, 2013

Leichhardteus garretti Baehr & Raven, 2013, 355, figs 2B, 7A–M, 12.

Diagnosis. Males differ from those of all other Queensland species by the high process on the palpal femur, the absence of a paracymbial spine, and the abdominal pattern in both males and females: dark brown with subtle pallid areas anteriorly and small pallid fishbone pattern posteriorly.

Supplementary description of holotype male and QM S12251. Carapace 3.11 long, 2.15 wide. Total length 6.3. Carapace: almost glabrous but pustulose; few hairs lateral of eyes and on clypeal edge; no saddle in front of fovea, at coxae II/III; striae indistinct. Chelicerae: small, vertical; fang shield small, otherwise as for genus. Sternum: intercoxal triangles on II/III; intercoxal band almost joins to carapace and sternum at III/IV; pustulose, slightly raised from margins. Legs: coxae with distinct posterior heel (inner corner); trochanters with short shallow notches; femora pustulose, very small feathery hairs evident on IV. Spines: short on tibiae I and II, *ca*. 1 length apart, longer and closer on metatarsi but not overlapping. I: fe pv1d2. II: fe d2; ti v2.2.2.2. III: fe p2d3r2; ti p2d2 (basal thorns)(d1) r2. IV: fe p2d3r1; ti p2d1r2. Palp: fe p1d2; pa 0; ti p2 basal long. Abdomen: covered with small black feathery hairs. Scutes: dorsal, narrow to half length; no ventral; tracheal, weakly sclerotised, transverse. Palp: femur ventrally with prominent subdistal prong directed slightly back; tibia with deep transverse groove to longitudinal ridge, and forming strong tibial edge; bulb with narrow embolic ridges and deep separate groove; sperm duct with double concave folds, sinuous then to tip; paracymbial spine absent but shallow retrobasal depression present.

Distribution. Known only from mid-eastern Queensland.

Leichhardteus terriirwinae Baehr & Raven, 2013

Leichhardteus terriirwinae Baehr & Raven, 2013: 357, figs 2E, 10A–G, 12.

Diagnosis. The male differs from those of other species in the intermediate form of the prong, which is not so strong as in *L. garretti* and *L. conopalpis* but is more distinct than in *L. kroombit*. Female unknown.

Supplementary description. Holotype male QM S38609. Carapace 3.51 long, 2.42 wide. Total length 6.6. Four pairs of spines on ventral tibiae I and II, with distal pair much smaller; spines on ventral cymbium retrolaterally near embolus tip. Paracymbial spine slender but distinct. Cheliceral fang shield low without long serrate bristles. Femora III and IV of male with slight distal constriction. Femora with distal dark band, otherwise pallid.

Distribution and Habitat. Known only from rainforest on an isolated mountain peak in north Queensland (Mt Aberdeen), at 850 metres, among one of the highest elevations at which the genus is found

Leichhardteus reinhardi Baehr & Raven, 2013

Leichhardteus reinhardi Baehr & Raven, 2013: 356, figs 2G, 9A–K, 12.

Diagnosis. Differs from all other species in the entirely black abdomen dorsally and in the extent of the black area on the carapace.

Supplementary description. Males with only three pairs of spines or with additional single distal spine on ventral tibiae I; tibiae II of male and I and II of females with four pairs of spines, with distal pair much smaller; spines on ventral cymbium retrolaterally near embolus tip. Paracymbial spine broad, thumb-like, distinct. Cheliceral fang shield in female low with long slender serrate bristles. Femora III and IV of male with slight distal constriction, not in female. Tracheal spiracle of male broadly rounded, triangular in female. Dorsal scute for 0.7 of abdomen.

Distribution & Habitat. Known only from Orchid Beach, Fraser Island, south-east Queensland, a hilltop area of heath mixed with eucalypts and *Banksia* in which the otherwise rainforest-loving hexathelid, *Hadronyche infensa* (Hickman, 1964), is also found.

Leptopicia gen. nov.

Diagnosis. Differs from *Poecilipta* in the very large AME (Figs 3f, 63a, as in *Medmassa*), the straight embolus (Fig. 63e) in males, lobular paracymbial spine (Fig. 64b, e), dorsal scute partial but no ventral scute in males, the highly folded spermathecae (Fig. 63d) of females, and the absence of post-epigastric sclerites in males and females.

Type species. *Methesis bimaculata* Simon, 1896.

Etymology. An anagram of *Poecilipta*, which it closely resembles; the gender is feminine.

Leptopicia bimaculata (Simon, 1896), new combination

(Figs 3f, 63a–e; 64a–e, 135. Map 31)

Methesis bimaculata Simon, 1896: 411; 1897: 172; Rainbow, 1911: 253; Roewer, 1955: 622.

Material. Queensland: lectotype ♂ and 1 ♂ 3♀ paralectotypes, here designated, MNHN 18267, "Cooktown".

Other Material. **Queensland:** 1♂, Burketown-Normanton Rd, W of Normanton & Fauna Sanctuary, 17°45'S, 140°56'E, open forest, pitfall, 5 Jul–12 Sep 2006, R. Raven, B. Baehr, A. Amey, QM S77200; 1♂, Chillagoe, SW along alternate Savannah Way, 17°29'S, 144°37'E, open forest, pitfall, 13 Jul–27 Sep 2006, R. Raven, B. Baehr, A. Amey, QM S75821; 1♂, 5♀, Burke Developmental Rd, 17°12'S, 141°39'E, 28 Jul 1995, pitfall, J. Thompson, M. Tio, S. Cowan, AM KS64087; 2♂, 2♀, Jardine River, vehicle vibration, open forest, 11°06'14"S, 142°17'02"E, 17 Sep 2013, B, Baehr, QM S98191.

Diagnosis. As for genus.

Description lectotype male MNHN

Carapace 2.12 long, 1.27 wide. Abdomen 2.34 long, 1.03 wide. Total, 4.8.

Colour. carapace and femora orange brown; carapace with slightly darker markings anterior to fovea and on interstrial ridges; legs otherwise yellow brown; abdomen light blue black dorsally overlaid but orange brown scute 3/4 abdomen length, with pair of large white ovoid spots laterally on midscute; ventrally, sternum brown orange, coxae I lighter, II–IV yellowish; abdomen with yellowish genital scute, centrally densely light brown flanked by dark brown. Carapace: narrow fovea just behind centre, posterior slope long, gradual from fovea, caput not raised, cuticle weakly pustulose, almost glabrous. Lateral profile of carapace (Fig. 3f): caput arched anteriorly, sloping continuously in shallow slope from fovea along posterior declivity; highest point just behind eye group; eyes set behind clypeus edge. Retrolateral face of large chelicerae smooth. Eyes: front row straight and slightly wider than procurved back row; sizes AME = *ca.* 2–2.5 x ALE = PME = PLE (Fig. 63a); lateral eyes on separate low tubercles. Chelicerae: robust, vertical, dentition 2R, 3P. Fang and transverse furrow long. Labium subquadrate. Maxillae longer than wide, outer edges straight. Sternum roughly triangular, converging from II/III, slightly domed; light cover of long brown setae, intercoxal extensions short. Legs: RCH and feathery hairs not evident. Trochanters not notched. Scopula absent. Tarsi cylindrical for length. Claw tufts small, dense, enclose claws. Femur IV without predistal constriction. Tarsi and metatarsi III and IV with thick lanceolate setae ventrally. Spines: strong on tibiae and metatarsi I and II. I: fe p1d2; ti v2.2.2; me v2.2. II: fe d3; ti p1v2.2.2; me p1v2.2. III: fe p1d3; pa 0; ti p1r2v2.2.2; me p2r2v2.2.3. IV: fe d4; pa 0; ti p1r2v2.2.2; me p2r2v2.2.3. Palp: fe d1; pa p1; ti p2.

Abdomen: colulus very small; long narrow dorsal scute from anterior face, but lacks collar, for 3/4 length, not extending onto lateral surface; genital scute weak with very small post-epigastric sclerites; ventral scute weak, almost square, as far from genital groove as from edge of widely semicircular tracheal scute with wide ridge. Spinnerets: PLS *ca.* 1/2 diameter of ALS.

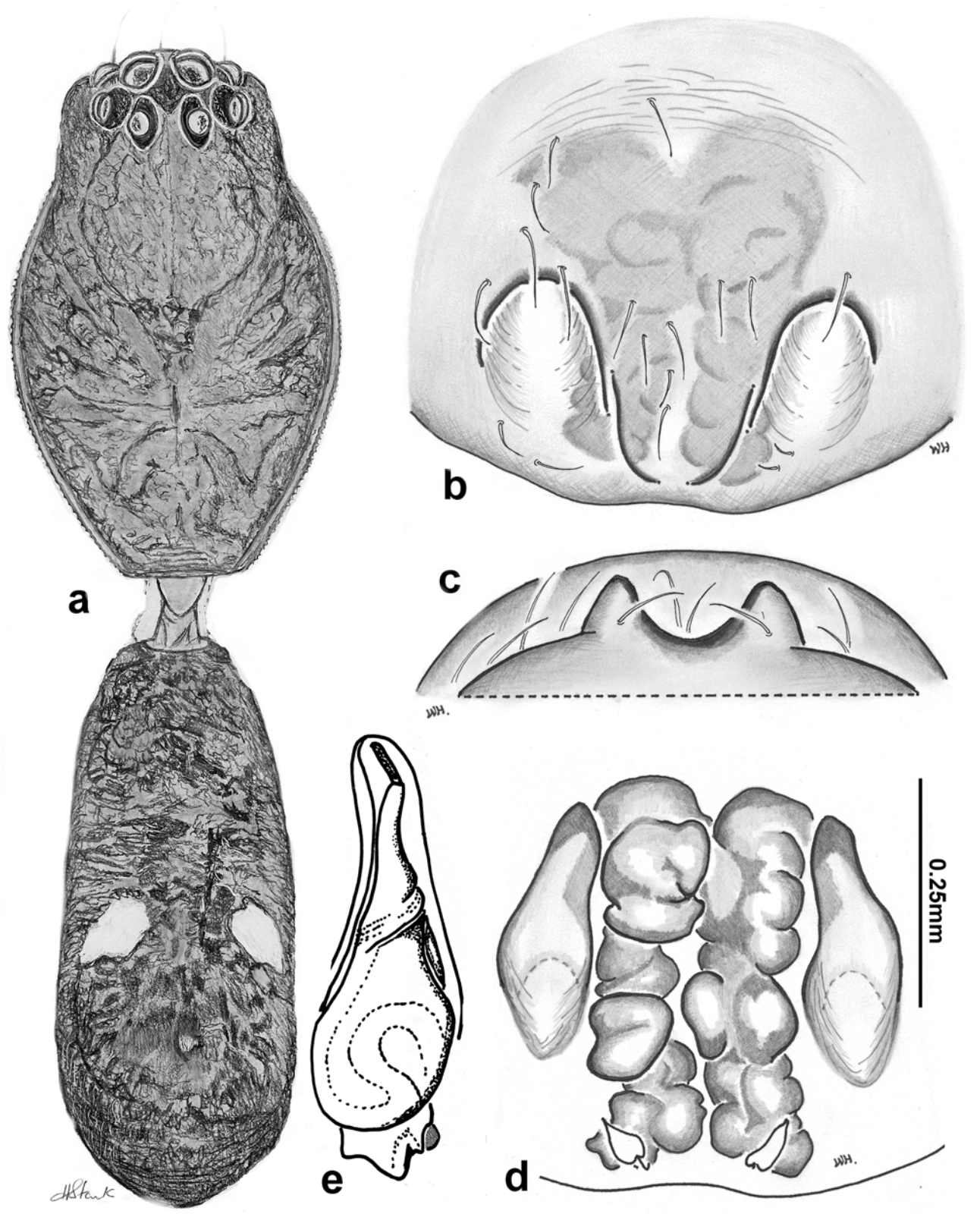


FIGURE 63. *Leptopicia bimaculata* (Simon, 1896), syntypes male, female, MNHP: a, habitus, female; b–d, epigyne, external (b), posterior (c), and internal (d); e, male palpal bulb and cymbium, ventral view.

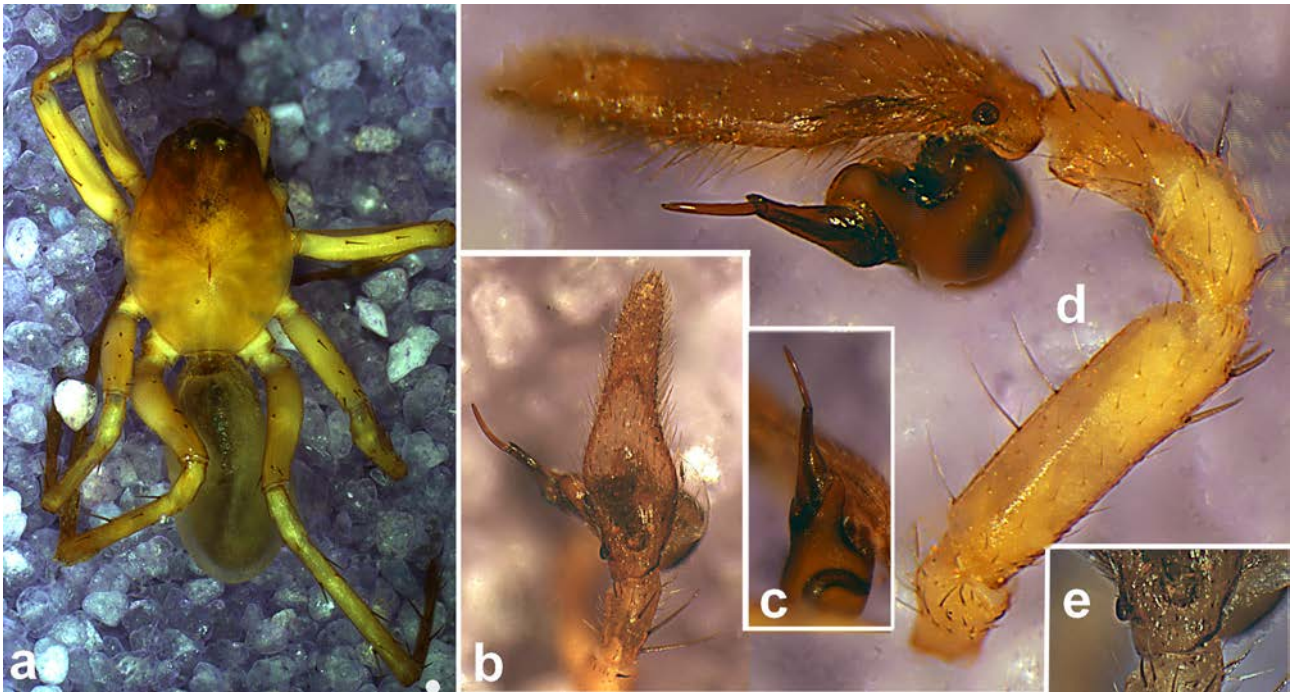


FIGURE 64. *Leptopicia bimaculata* (Simon, 1896), male, QM S77200, from Normanton: a, habitus; b, palpal cymbium and tibia, dorsal view; c, embolus, ventral view; d, femur, patella, tibia and cymbium, retrolateral view; e, paracymbial spine, dorsal view.

Female paralectotype like ♂ except:

Carapace 2.33 long, 1.40 wide. Abdomen 2.86 long, 1.26 wide. Total, 5.2.

Chelicerae: robust, without enlarged fang setae. Legs: RCH small, distinct. Spines: III: tibia p2. Abdomen: dorsal scute absent; tracheal scute weak, ovoid, with broad weak ridge. Epigyne: two deep fossae separated by broad, ridged depression; spermathecae highly folded; FD straight, forward and wide; spermathecae highly folded.

Distribution and Habitat. Known from the the Jardine River, near the tip of Cape York south to the Chillagoe area west to the Gulf of Carpentaria, north Queensland, an area of open forest and grasslands. The syntypes were listed from "Cooktown" (coastal northeastern Queensland); however, presumably that was merely its port of loading. As with *N. avidus* (Thorell, 1881), these are the first new records of this species since the 19th century.

Nucastia gen. nov.

Diagnosis. Differs from *Poecilipta* in having a distinctly raised caput or cephalic region (Fig. 1e, f); males have a weak dorsal scute, a very thin ventral scute, if present, no paracymbial spine, and in females, the dorsal scute is very small to absent, other scutes absent. Both males and females have the anterior eye row set on the roundly projected clypeal edge (Figs 1e, f, 68a), extending the extent of the carapace. Differs from *Castianeira* in having only bristles or lacking spines on tibiae I and II and 0–2 on metatarsi I and II. Females and males are also unusual in having a distinct retrobasal spinose ridge on the chelicerae (Fig. 1f).

Etymology. Based on *Castianeira*, with bare (spine-free) tibiae I and II. The gender is masculine.

Type Species: *Nucastia virewoods* sp. nov.

Description. Carapace elongate, with long raised caput; almost glabrous, cuticle smooth; usually narrow dark margin and pattern-less orange brown centre; fovea long, over edge of shallow posterior slope. Lateral profile of carapace (Fig. 1e, f): caput distinctly domed with eyes on projecting lobe, domed slightly less behind fovea but shallow slope from fovea along posterior declivity; highest point at midpoint of fovea and eye group. Feathery hairs sparse on femora, usually absent on carapace and abdomen. Eyes: eight in two rows in small tight group; front row recurved; back row slightly procurved; front eyes larger, with AME set forward on common tubercle; small PME *ca*. 1.5 times apart. Retrolateral face of moderately large chelicerae with distinct multicusped ridge (Fig. 1f);

chelicerae long with distinct gap to maxillae most noticeable in ♀ (Fig. 1f); fang short, groove oblique with two teeth on both margins; enlarged fang setae absent in ♀. Labium as wide as long; maxillae rhomboidal, convergent at base with broad diagonal mounded edge; inner edge concave. Sternum roughly triangular with small intercoxal extensions. Coxal bases with extensions. RCH present; femur IV without predistal constriction. Legs slender, tibiae I and II and sometimes III weakly spinose or aspinose. Patellar spine sometimes on III. Scopula on metatarsi and tarsi I and II, and weaker on tarsi III and IV. Claw tufts dense, short. Lateral spinnerets of similar size. Colulus hirsute, triangular. Abdominal pattern of males often absent or a pair of spots mid-dorsally with bars or spots posteriorly; dorsal scute narrow in male, absent in females; ventral scute very thin to absent in males, absent in females; tracheal scute not strongly sclerotised in males or females; genital scute weak. Male palp without retrolateral tibial apophysis but with shallow ventral groove (Fig. 70b); cymbium simple, tapering with pallid tip but no enlarged pseudoclaw; paracymbial spine absent; bulb simple with sinuous embolus; subtegular notches small. Epigyne (Fig. 70c) a broad triangular plate with two small round fossae.

Species Included: *N. culburra* sp. nov., *N. eneabba* sp. nov., *N. muncoonie* sp. nov., *N. supunnoides* sp. nov., *Nucastia virewoods* sp. nov., and *Medmassa fusca* Hogg, 1900, a *nomen dubium.*

Remarks. Some *Nucastia* species seem to be a mimic of *Nyssus* or *Storena* (Zodariidae), both in the pattern and *Storena* also in the elevated shiny caput. The most diagnostic interspecific character is the abdominal pattern. Data with females from South Australia (AM KS32069) report that the spiders were mimicking the ant *Iridomyrmex purpureus* (Smith, 1858).

Key to species of *Nucastia*

Males (of *N. eneabba* unknown)

1. Dorsal abdominal scute for almost length of abdomen (Fig. 65c) . . . . . *N. virewoods*
   Dorsal abdominal scute for at most two-thirds the length of abdomen 2
2(1). Dorsal abdominal scute for two-thirds the length of abdomen . . . . . *N. culburra*
   Dorsal abdominal scute for about half length of abdomen 3
3(2). Ventral "scute" thin but glossy, glabrous; dorsal abdomen with two pallid spots (Fig. 69a) . . . . . *N. muncoonie*
   Ventral abdomen of similar pilosity and hardness; dorsal abdomen with long bell-shaped pallid zone (Fig. 71e). . . . . *N. supunnoides*

Females

1. Dorsal abdomen with 3–5 or more pallid spots evident anteriorly (Fig. 69b) 2
   Dorsal abdomen with only two pallid spots evident anteriorly, if any (Fig. 68a) 4
2(1). Carapace dark brown (Fig. 71e); patella IV not strongly contrasting with femur and tibia IV 3
   Carapace jet black (Fig. 69b); patella IV strongly contrasts with femur and tibia IV . . . . . *N. muncoonie*
3(2). Abdomen dorsally with two pallid small spots and posterior chevron (Fig. 66d) . . . . . *N. culburra*
   Abdomen with anterior and posterior pallid bars and medially c-shaped pallid spots laterally (Fig. 71e). . . . . *N. supunnoides*
4(1). Dorsal abdomen with two large paired fused irregular spots medially and laterally (Fig. 68a) . . . . . *N. eneabba*
   Dorsal abdomen with few, if any, spots (Fig. 65c) . . . . . *N. virewoods*

Nucastia virewoods sp. nov.

(Fig. 65a–e. Map 32)

Material. Victoria: holotype ♂, McDonalds Rd, 1.8 km S Shepparton–Barmah Rd, 36°04'S, 145°02'E, 17–22 Jan 1994, G. Milledge, MV K4397. Paratypes: **Victoria**: 2♂, Murray Valley Hwy, Deep Creek Xing, 36°08'S, 145°11'E, 17–22 Jan 1994, G. Milledge, MV K4524; 1♂, McLellands Rd, 0.1 km N Rathbones Rd, 36°09'S, 145°13'E, 17–22 Jan 1994, G. Milledge, MV K4528; 2♂, Goulburn River, 12 km SSE Nathalia, 36°09'S, 145°13'E, 17–22 Jan 1994, G. Milledge, MV K4530; 1♂, State Forest, 1 km SE Yambuna, 36°09'S, 145°00'E, 17–22 Jan 1994, G. Milledge & P. Lillywhite, MV K4396; 3♂, Murray Valley Hwy, 0.3 km NNW Walshs Bridge, 36°06'S, 145°11'E, 17–22 Jan 1994, G. Milledge, MV K4521; 2♂, Brooms Rd, 7.5 km NE Yambuna, 36°06'S, 145°05'E, 2–7 Dec 1994, S. Hinkley *et al.,* MV K4404; 1♂, Pomfrets Rd, 0.6 km S Picola–Katunga Rd, 36°00'S, 145°13'E, 17–22 Jan 1994, G. Milledge, MV K4533; 2♂, Rathbones Rd, 3 km E of Booths Rd, 36°09'S, 145°13'E, 17–22 Jan 1994, G. Milledge & P. Lillywhite, MV K4526.

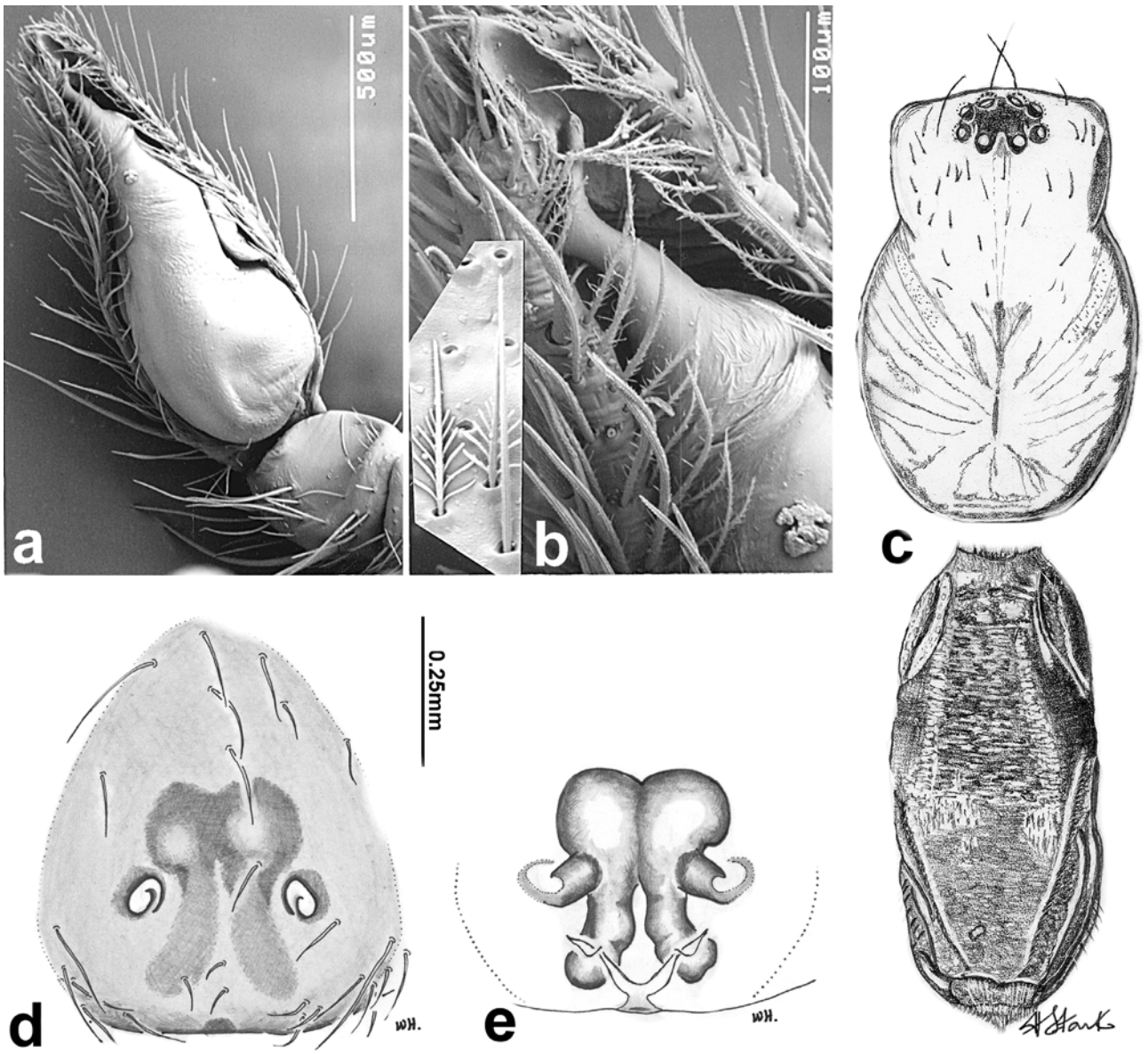


FIGURE 65. *Nucastia virewoods* sp. nov., scanning electron micrographs, holotype male, MV K4404. scanning electron micrographs: a, palpal tibia, bulb and cymbium, ventral view; b, embolus tip, ventral view; insert, feathery hairs on cymbium; allotype female, c–e; c, habitus; d, e, epigyne, external (d), and internal (e).

Diagnosis. Males differ from those of *N. culburra* sp. nov., in the less acuminate posterior end of the flatter sternum, the high spinose retrobasal cheliceral ridge (as in *N. supunnoides* sp. nov., Fig. 1f), and the absence of pale spots dorsally on the abdomen (Fig. 65c); females differ from other species in the almost total absence of large white spots with, at most, just bands of white hair.

Etymology. The species epithet is a combination of letters from Victoria Remnant Woodlands Study, on which survey the material was taken.

Description holotype male MV K4397

Carapace 3.52 long, 1.84 wide. Abdomen 3.36 long, 1.2 wide. Total length 6.9.

Colour: carapace brown orange with vague black hemispheres on margins above coxae I/II, II/III and IV; sternum, maxillae, labium and chelicerae brown orange; abdomen dorsally very dark brown with pair ovoid spots of white hair centrally and fine transverse bands posteriorly; coxae I brown orange, II–IV fawn; palp and femora I and II brown orange, rest of I and II pallid or translucent; femur III darker brown orange, other segments paler; femur IV dark brown with white scales; base of patella IV brown, rest yellowish, tibiae and metatarsi brown orange, tarsi pallid; ventral genital scute brown, otherwise venter dark brown; eye region black. Carapace: long

cephalic portion distinctly raised with fine black hairs around caput margin, anteromedially and along strial ridges; posterior margin hardly indented; fovea long closed; clypeus about one AME diameter. Eyes: AME clearly largest, *ca.* 1.2 diameters apart; other eyes small; MOQ long. Chelicerae: small, vertical but distinct spinose ridge basally on posterior face adjacent to maxillae; fang transverse, long but tips well below maxillae; furrow short, diagonal, with two similar teeth on promargin set close to fang base; one large and one smaller on promargin set below that; fang shield rounded with slender transverse hair. Maxillae: posterior ectal corner truncate with domed edge, inner margin excavate for length; apex rounded with long serrula, inner corner truncate and sloping to ectal edge. Labium long. Sternum with strong margin rising quickly to broad domed centre; strong sclerotised precoxal sclerites and intercoxal extensions interlock with strong basal triangle on coxae; setae sparse, only *ca.* 30 long bristles around margin and few shorter hairs; posterior angle distinct, continuous with less sclerotised shield back to unsclerotised portion of pedicel. Legs: trochanteral notches almost absent on I–III, shallow on IV; scopula absent; no distal tufts ventrally on metatarsi III and IV. Claws: hidden by short dense but not distensible tufts; white scales on femora III and IV; feathery hairs on femora I–IV, few dorsally on I and II also laterally on III and IV. Spines: I: fe pv1p1d3; me v2 basal; rest 0. II: fe p1d3, metatarsus v2 basal, rest 0. III: fe p2d3r2; pa apical 1w; ti p2d1r2v1.2; me p3r3v2.2.2. IV: fe p2d3r1; pa apical 1w; ti p2d1r2v1.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa 2 dorsal bristles; ti p2 basal; cymbium p2 basal, v1 on apical cone. Abdomen: large oval scute for 3/4 length dorsally; genital scute setose; no ventral scute evident; only slight sclerotisation evident near tracheal spiracle on paratypes. Palp: tibia ventrally with low prebasal ridge before distal glabrous saddle and distal collar, prolateral process interlocking with basal cymbial hollow; paracymbial spine absent; cymbium with short retrobasal constriction and retrolateral margin convex, apical cone with groove to tip; bulb with low collar and sinuous embolus.

Allotype female MV K4404

Carapace 3.36 long, 2.00 wide. Abdomen 4.08 long, 2.24 wide. Total length 7.4.

Colour: carapace reddish brown with triangle of white hair at posterior caput angle in front of fovea; chelicerae red brown, femora orange brown, patellae–tarsi fawn; femora III and IV darker distally; abdomen dorsally dark brown with two large diagonal oval patches of white hair at midlength; posteriorly with two small crescentic white patches just above anal tubercle, ventrally pale gray flanked by wide band of white hair well defined on dorsal edge; sternum, maxillae and labium orange brown with pallid coxae. Carapace: with 3–6 fine black bristles along each strial ridge and *ca*. 20–30 on caput; posterior margin not indented; crescent of white plumose hairs anterior to short, straight, closed fovea. Eyes: AME clearly largest. Chelicerae: stout, slight concavity prolaterally above fang; distal process rounded with long curved thick hairs. Two large teeth on retromargin, one large flanked by one small, all set near fang base. Maxillae with long, curved serrula; outer margin straight. Sternum: distinct triangular intra- and intercoxal triangles. Legs: band of large black feathery hairs dorsally (I–IV) and pallid feathery laterally on femora (III–IV); trochantersl notches shallow. Scopula on tarsi I–IV and weak distal on metatarsi I and II. Spines: I: fe pv1p1d3; ti v1.1w; me v2 basal. II: fe p1d3; ti 0; me v2 basal. III: fe p2d3r2; pa distal 1; ti p2d1r2v1.2.2; me p3r3v2.2.3. IV: fe p2d3r1; pa distal ti p2d1r2v1.1.1; me p3r3v2.2.3. Palp: fe p1d2; pa p1d1.1; ti p2d1; ta p2r1v3 distal. Claws: palpal claw small, curved, with two small teeth. Paired claws as long as high, tufts larger on IV than I; *ca.* 3–4 teeth on I, 7–8 on IV. Abdomen: small ovoid scute anteriorly; white hairs feathery, genital scute lightly sclerotised with soft anterior edge; tracheal scute similar, not heavily sclerotised. Epigyne: with pair of spiralled lateral fossae.

Distribution. Known only from the greater Murray River valley, near Barmah, Victoria.

***Nucastia culburra* sp. nov.**
(Figs 66a–d, 67 a–d. Map 33)

Material. South Australia: holotype ♂, Culburra, 35°49'S, 139°58'E, pitfall, 8 Dec 1981–20 Jan 1982, P. Allen, QM S39281. Paratypes: taken with holotype: 1♀ (allotype), QM S39282; 1♂, 1♀, QM S32630; 3♀, QM S39283.

Diagnosis. Differs from *N. virewoods* by the less extensive dorsal scute in males and the weaker spination of the retrobasal cheliceral ridge; the embolus also has a less distinct basal ridge; females differ from those of *N. muncoonie* sp. nov. in the absence of large spots dorsally on the abdomen.

Etymology. The species epithet is a noun in apposition from the type-locality.

Description holotype male QM S39281

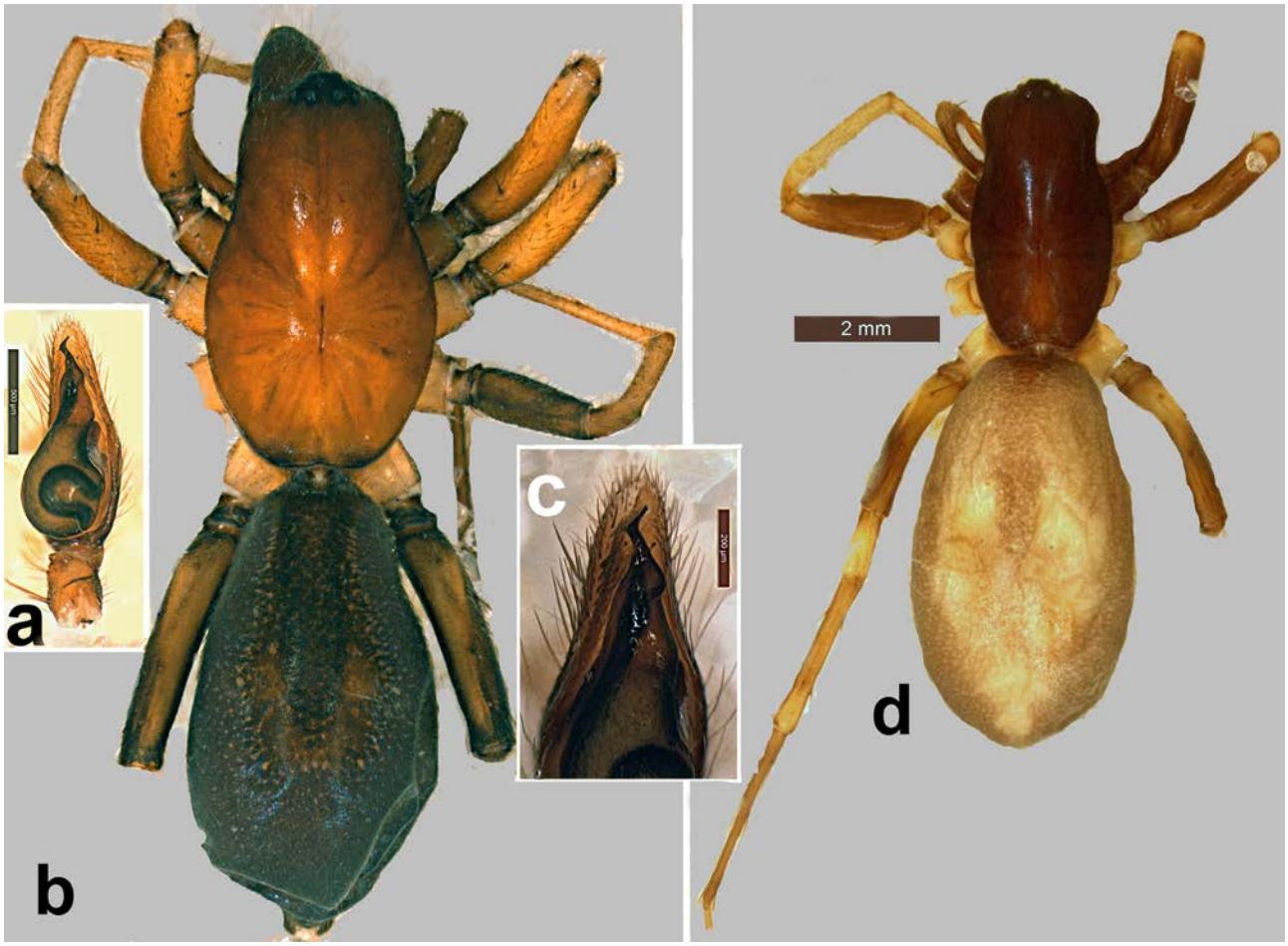


FIGURE 66. *Nucastia culburra* sp. nov., holotype male, QM S39281, allotype female, QM S39282. a, palpal tibia, cymbium and bulb, ventral view; b, male, habitus; c, embolus tip, ventral view; d, female, habitus.

Carapace 3.84 long, 2.24 wide. Abdomen 4.24 long, 2.40 wide. Total length 8.1.

Colour: carapace orange brown with dark smudges on posterior corners, strial ridges and anterior medial ridge slightly darker; abdomen dark brown, darker scute offset by band of paler spots for 2/3 of length, widening distally, venter brown with two pallid parallel bands delimiting weak scute; sternum, maxillae, labium and chelicerae red brown; coxae yellowish; femora I and II paler than carapace, patellae & tarsi I and II paler again; femora III and IV and tibia IV dark brown laterally with pallid dorsal and ventral band; otherwise leg III orange brown, IV darker. Chelicerae: margin short, diagonal, two teeth on retromargin, promargin with one large tooth flanked by one smaller on each side; fang shield indistinct, retrobasal ridge distinct with short setae. Legs: trochanters with shallow (3x wider than deep) notches. No spines ventrally on tibiae I–III; only erect bristlesl; very weak scopula on tarsi I and II. Spines: I: fe pv1p1d3; ti 0; me v1 basal. II: fe p1d3; ti 0; me v1 basal. III: fe p2d3; pa d1 apical ti p2d1r2v0; me p3r3v2.2.3. IV: fe p2d3; pa d1 apical; ti p2r2v1.2.2; me p3r3v1.1.1.1.3. Palp: fe p1d2; pa p1d1; rest 0. Abdomen: narrow, oval, dorsal scute for half length; only genital scute ventrally; tracheal spiracle not offset, raised or sclerotised. Distinct triangular colulus. Suprapulmonary sigilla long, oval. Palp: embolus with distinct basal ridge.

Allotype Female QM S32630. Like ♂ except:

Carapace 4.08 long, 2.24 wide. Abdomen 5.76 long, 3.52 wide. Total length 9.8.

Colour: carapace deep red brown; coxae and femur I dark brown, femora II and III lighter; femur IV basally yellow brown, distal half brown; abdomen: light brown with faded areas laterally of midline; another ♀ paratype has two large paired spots just before centre and two centrally in posterior third of dorsal abdomen; small prodorsal scute brown, venter pallid brown. Chelicerae: fang shield small, rounded with brown curved bristles. Legs: few small pallid feathery hairs on femora III and IV. Distinct but weak scopula on tarsi I and II. Spines: I: fe pv1p1d3; me v2 basal. II: fe p2d3; me v2 basal. III: fe p2d3r1; pa apical bristles; ti p2d1r2v2.2.0 weak; me p3r3v2.2.3. IV: fe p2d3r1; pa apical bristle ti p2d1r2v1.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1; ti p1; ta p2r1v2 apical. Claws: palp

apically curved with two teeth. Epigyne: broadly triangular with two small fossae off centre. Abdomen: with small triangular scute confined to anterior face of abdomen.

Distribution. Known only from Culburra, South Australia.

Burrow. Hirst (pers. comm.) reports these spiders make a short burrow in the ground *ca*. 30 mm deep and a palisade of small twigs above ground for about 10 mm, similar to the palisade made by *Storena* (Zodariidae).

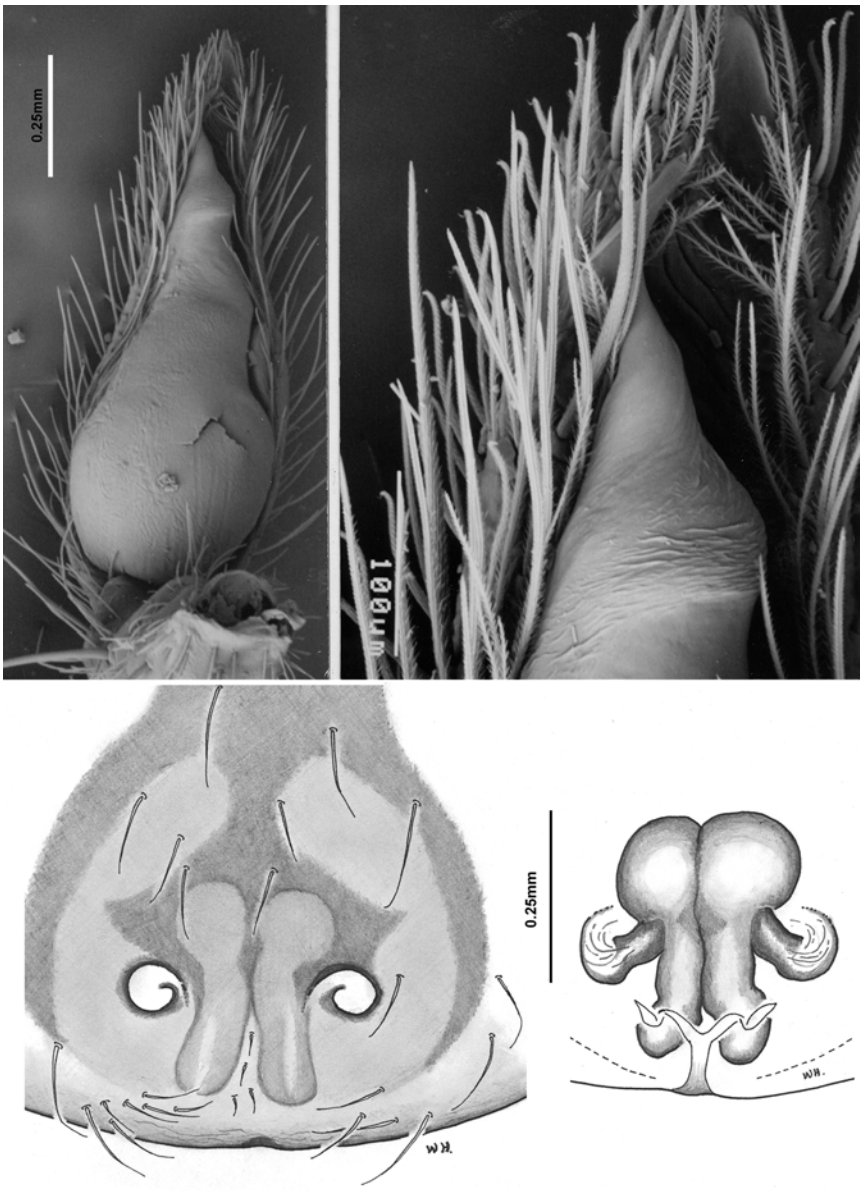


FIGURE 67. *Nucastia culburra* sp. nov., scanning electron micrographs, holotype male, QM S39281 (a, b), allotype female, QM S39282 (c, d). a, palpal tibia, cymbium and bulb, ventral view; b, embolus, tip; c, d, epigyne, external (c), and internal (d).

***Nucastia eneabba* sp. nov.**
(Figs 68a–c, 135. Map 34)

Material. **Western Australia**: holotype ♀, Eneabba, [29.8167° S, 115.2667° E], 8 Mar 1989, R.P. McMillan, WAM T74048.

Diagnosis. The female differs from those of *N. virewoods* sp. nov. by the large pallid spots dorsally and extending laterally on the abdomen as well as the closer copulatory openings. Males unknown.

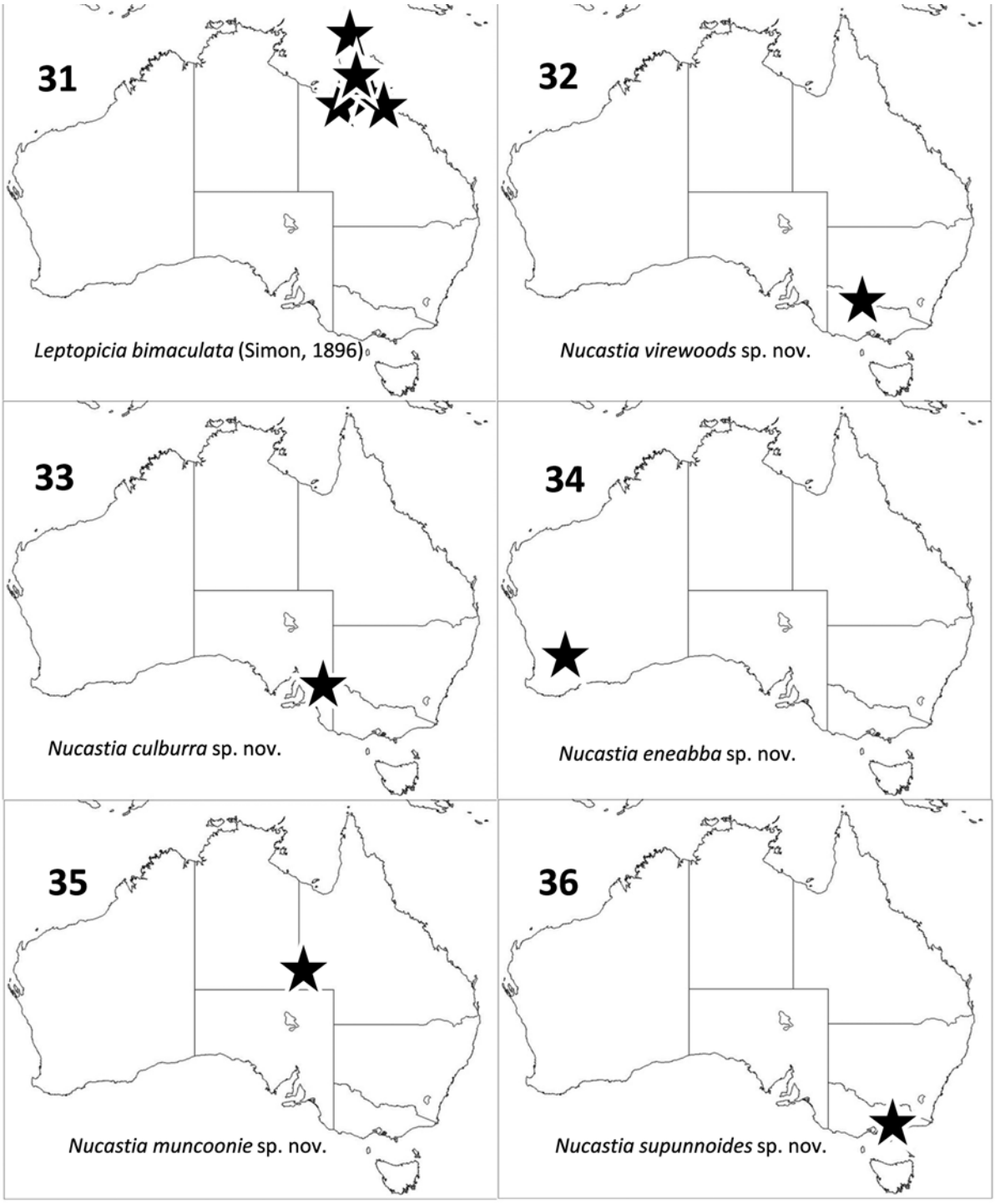
Etymology. The species epithet is a noun in apposition from the type-locality.

Description Holotype female WAM T74048.

Carapace 3.41 long, 1.98 wide. Abdomen 4.43 long, 3.64 wide. Totally, 8.5.

Colour: carapace and chelicerae dark red brown anteriorly, fading slightly to brown posteriorly; abdomen light brown with large irregular white patches medially to laterally and two small chevrons just above anal tubercle; coxae and trochanters white; femora I and II brown; III and IV with pallid diagonal band; patellae–tarsi I and II pallid; tarsi III and IV concolorous with femora. Spines: I and II: fe p1d3; III: fe p2d3r1; IV, fe p1d3r1. Epigyne: copulatory openings small, tightly spiralled, about two diameters apart; internally, head of spermatheca slightly enlarged without accessory lobe.

Distribution. Known only from Eneabba, Western Australia.



MAPS 31–36. Records of Australian species of *Leptopicia* gen. nov. and *Nucastia* gen. nov.

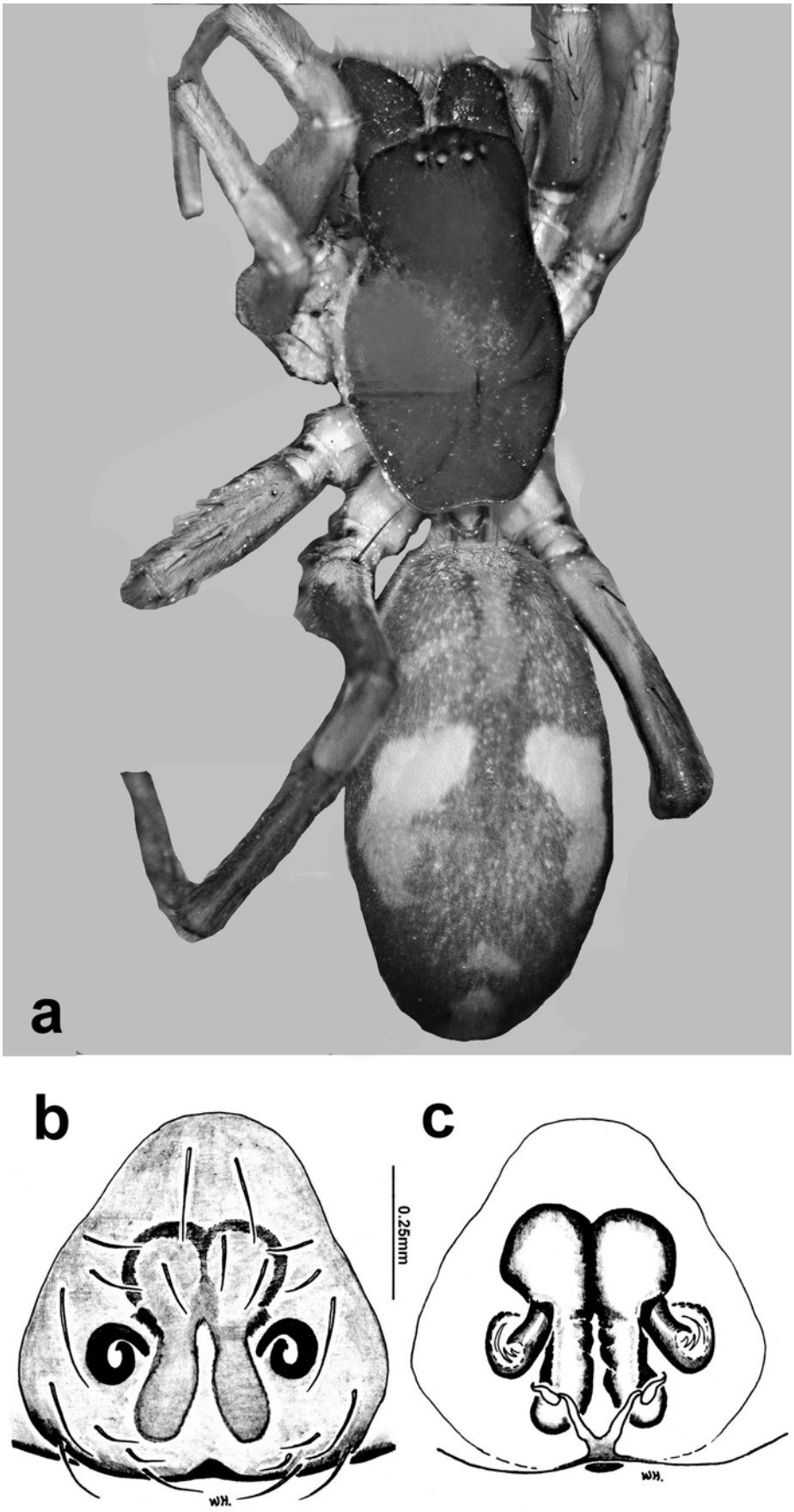


FIGURE 68. *Nucastia eneabba* sp. nov., holotype female, WAM T74048: a, habitus; b, c, epigyne, external (b), and internal (c).

***Nucastia muncoonie* sp. nov.**
(Figs 69a, b, 70a–d. Map 35)

Material. **Queensland**: Muncoonie Lakes, NW Birdsville, 25°12'S, 138°41'E, Sandy Desert Plain, 12–17 Nov 1976, R. Raven & B. Company, 6th Battalion, Royal Australian Regiment: holotype ♂, QM S4229. Paratypes: QM S39573: 1♀ (allotype); 1♀, QM S3817; 2♂ QM S39574.

FIGURE 69. *Nucastia muncoonie* sp. nov., holotype male, QM S4229, allotype female, habitus: a, male; b, female.

Diagnosis. Among species in which the male has a dorsal scute for half the abdomen length, males differ from those of *N. culburra* sp. nov. in having a second pair of white spots on the dorsal abdomen behind the anterior pair. Females differ from those of all other *Nucastia* in the presence of an accessory diverticula on the head of the spermathecae (Fig. 70d).

Etymology. The species epithet is a noun in apposition from the type-locality.

Description holotype male QM S4229

Carapace 3.84 long, 2.24 wide. Abdomen 4.48 long, 2.32 wide. Total length 8.3.

Colour: carapace and femora bright brown orange, femora III and IV also with light (III) or dark (IV) brown lateral faces, patellae–tarsi I–III and tarsi IV brown yellow, tibiae and metatarsi IV dark brown; abdomen dorsally blue black with narrow convergent red brown scute for anterior 3/8, a transverse pallid band through posterior tip of scute; ventrally, sternum brown orange, coxae contrasting yellow, abdomen blue black with two pallid bands sinuous longitudinal paramedially; eye region black. Carapace: long fine black hairs sparse on thoracic region, more on lateral caput and in eye group. Eyes: AME project forward on common tubercle (as in other species). Sternum almost glabrous with intercoxal triangles. Maxillae with retrobasal ridge (as in other species). Legs: trochanter IV notch distinct, *ca*. 1.5 times wider than deep, on others very shallow. Spines: I: fe p2d3; me v2.0 II: fe p2d3; me v2.0. III: fe p2d3r3; pa p1 strong ti p2d1r2v1.1.2(w); me p3r3v2.2.3. IV: fe p2d3r3; pa d1; ti

p2d1r2v2.1.2; me p3r3v2.2.3. Palp fe p1d2; pa 0; ti p1; cymbium p2 basal, d1w. Palp: embolus with shallow twist apically. Abdomen: genital scute strong, without collar; tracheal scute minute or absent; full ventral scute. Colulus a distinct equilateral triangle.

Allotype female QM S39573. As ♂ except:

Carapace 4.00 long, 2.48 wide. Abdomen 5.76 long, 3.92 wide. Total length 9.8.

Colour: carapace dark red brown and lateral femur IV dark red brown with pallid band for length dorsally and for basal half prolaterally; abdomen dorsally dark brown with two pairs of white spots at half length, anterior pair *ca.* 4 times the larger, and series of close set pallid chevrons down posterior third; narrow band of fawn coloured hair anteromedially. Tibia and metatarsus IV only slightly darker than III; ventrally, coxa I darker than II–IV; abdomen light brown with faded paler areas midlaterally, medial band faded brown. Carapace with triangle of white feathery hairs behind (sparse) and in front of fovea (dense); uniform cover of fine black hairs. Chelicerae: without enlarged fang setae; all trochantersl notches shallow. Scopula on tarsi I–IV and metatarsi I and II. Spines: I: fe pv1p1d3; me v2.0. II: fe p2d3; me v2.0. III: fe p2d3r2; pa d1; ti p2d1r2v1.2.2; me p3r3v2.0. IV: fe p2d3r1; ti p2d1r2v1.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa d1; ti p2 basal; ta p2 basal r1. Epigyne: trianguloid without paragenital weakness; two small lateral fossae; genital plate not a scute; internally, as for genus but accessory diverticula present on head of spermathecae (Fig. 70d).

Distribution and Habitat. Known only from desert around the (shallow) Muncoonie Lakes, west of Birdsville, south-western Queensland.

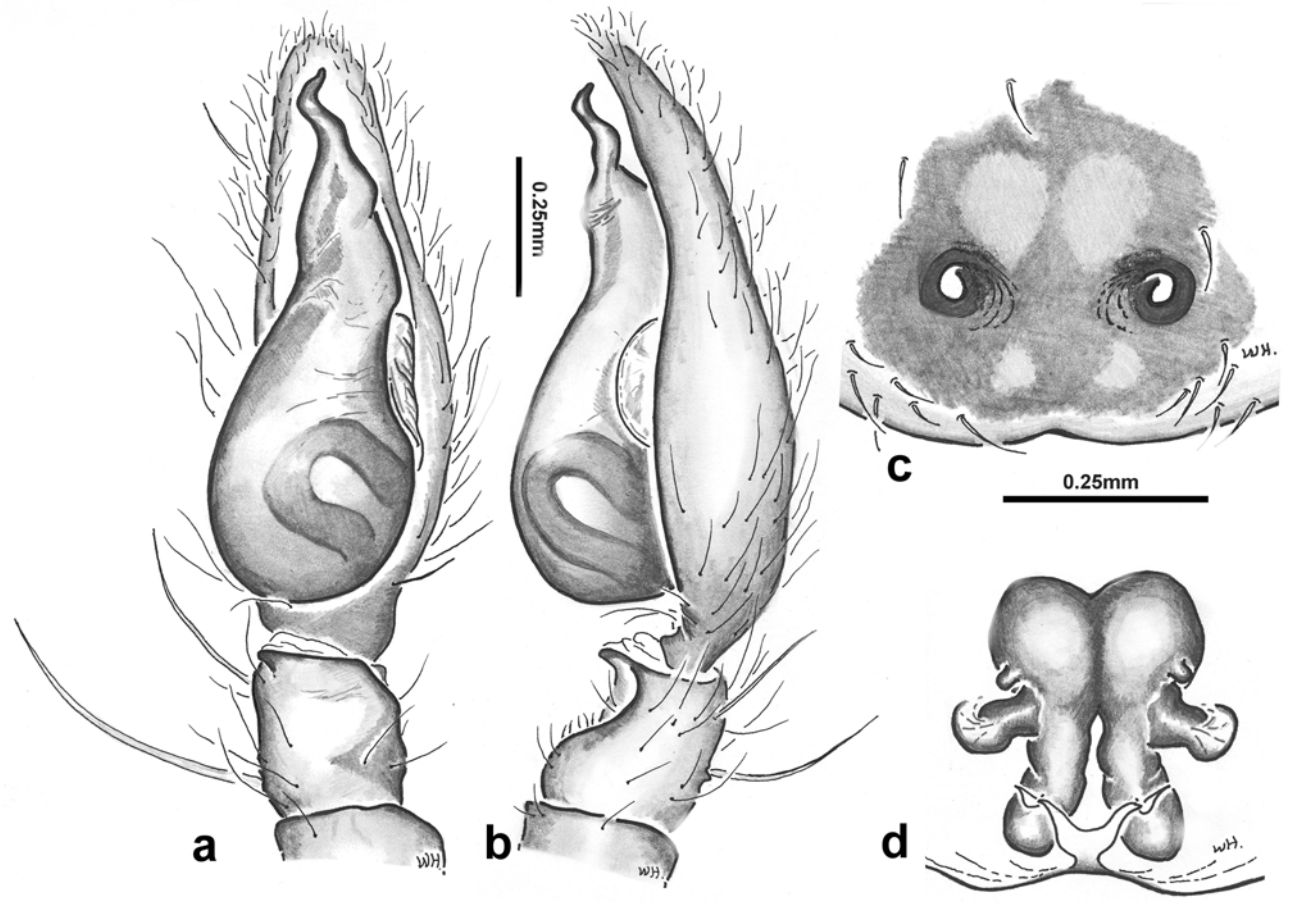


FIGURE 70. *Nucastia muncoonie* sp. nov., holotype male, QM S4229, female, QM S39574: a, b, palpal tibia, bulb and cymbium, ventral view (a), retrolateral view (b); c, d, epigyne, external (c), and internal (d).

***Nucastia supunnoides* sp. nov.**
(Figs 1f, 71a–e, 72a–d, 79c. Map 36)

Material: **Victoria**: Avon R near Valencia Ck, 37°47'S, 146°57'E, gravel bank in stream bed, pitfall, V. Framenau:

holotype ♂, 12–28 Feb 1997, QM S44068. Paratypes: 1♂, 1♀ (allotype), 20 Jan–12 Feb 1997, QM S44067; 1♂, 12–28 Feb 1997, QM S44070; 1♀, 13–26 Mar 1997, QM S44071; 2♂, 29 Jan–12 Feb 1997, QM S44073; 1♂, 1–18 Dec 1996, QM S44076; 2♀, 29 Jan–12 Feb 1997, QM S44077; 2♂, 29 Jan–12 Feb 1997, QM S44078; 2♂, 15–29 Jan 1997, QM S44081; 1♀, 12–28 Feb 1997, QM S44084; 1♂, 1–15 Jan 1997, QM S44085; 1♂, 20 Jan–12 Feb 1997, QM S39465; 1♂, 15–29 Jan 1997, QM S44072; 1♀, 12–28 Feb 1997, QM S44091; 1♂, 2–28 Feb 1997, QM S44092; 1♂, 18 Dec 1996–1 Jan 1997, QM S44093; 1♂, 12–28 Feb 1997, QM S44094; 3♂, 12–28 Feb 1997, QM S44095.

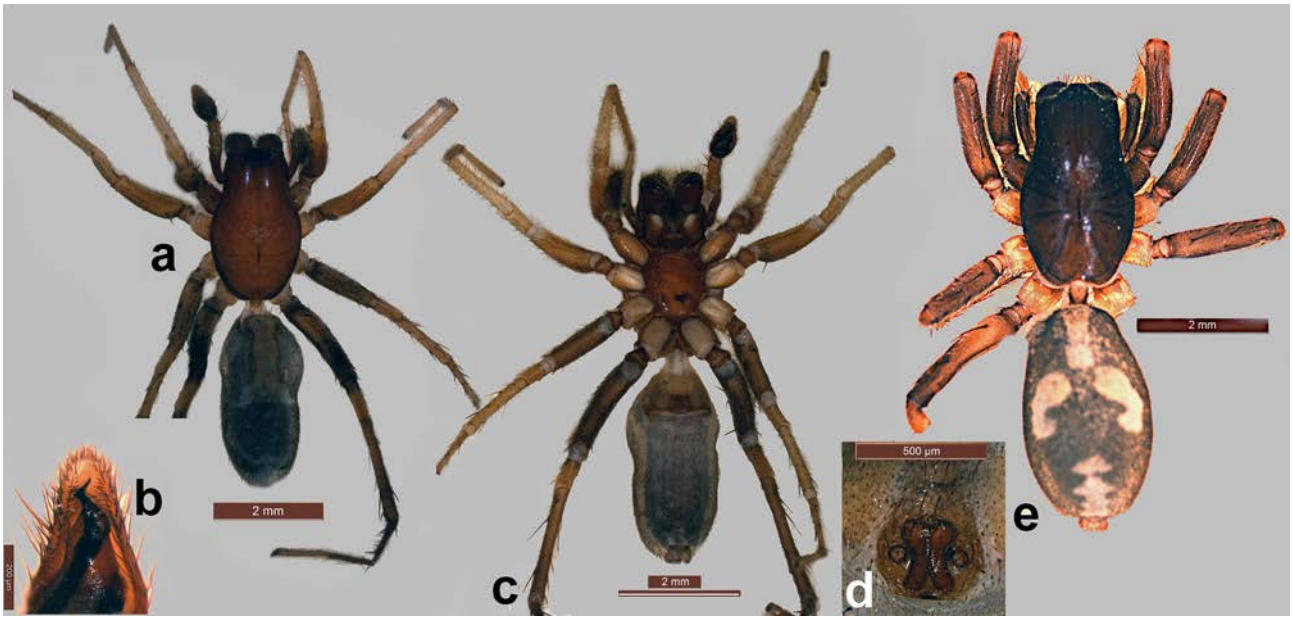


FIGURE 71. *Nucastia supunnoides* sp. nov., holotype male, QM S44068 (a–c), allotype female (d–e), QM S44067, a, habitus; b, embolus tip, ventral view; c, venter; d, epigyne, ventral view; e, habitus.

Diagnosis. Differs from *N. virewoods* sp. nov. in the shorter dorsal scute in males, and also from *N. culburra* sp. nov. in the T-shaped pattern on the abdomen of males. The pattern on the abdomen of the female is like that of *Nyssus coloripes* and so differs from all other species.

Etymology. The species epithet alludes to the abdominal pattern, at least of females, resembles that of the sympatric *Nyssus coloripes,* formerly *Supunna picta*.

Description holotype male QM S44068

Carapace 3.28 long, 1.84 wide. Abdomen 3.52 long, 1.68 wide. Total length 6.9.

Colour: carapace and chelicerae orange brown; femora I–III lighter, orange brown (III with bands of white hair laterally), patellae–tarsi pallid, almost translucent; femur IV dark brown with orange zone retrolaterally, basally extending onto prolateral face, patella IV basally dark, distally band of white hair with 3/4 yellow brown; tibiae and metatarsi brown, tarsi pallid; abdomen dorsally dark gray with short (0.5 length) ovoid scute, broad inverted pallid T-shaped mark and small pallid triangle and ovoid area posteriorly. Coxae pallid; abdomen ventrally blue-black without scute but with darker medial zone. Carapace: light cover of fine black hairs on margin and interstrial ridges, hairs longer on caput. Chelicerae: retrobasal ridge distinct, setose. Sternum: broad, gently arched, with distinct intercoxal projections. Spines: I: fe pv1p1d3; ti 0; me v2 basal. II: fe p1d3; ti 0; me v2 basal. III: fe p2d3r2; pa d1 apical long; ti p2d1r2v1.1; me p3r3v2.2.1. IV: fe p2d2r2; pa d1 apical long; ti p2d1r2v1.2.2; me p3r3v2.2.1. Palp: fe p1d2; pa p1d1 (weak); ti p2 long. Abdomen: scute extends for 0.5 length, covered with pallid feathery hairs; long black feathery hairs in dark areas; small triangular colulus; tracheal spiracle short, without sclerotised edge. Palp: light scopula on distodorsal cymbium, strong spine distally on prolateral cymbial edge; bulb with open apical twist.

Allotype Female QM S44067. Like ♂ except:

Carapace 3.52 long, 2.00 wide. Abdomen 3.76 long, 2.32 wide. Total length 7.2.

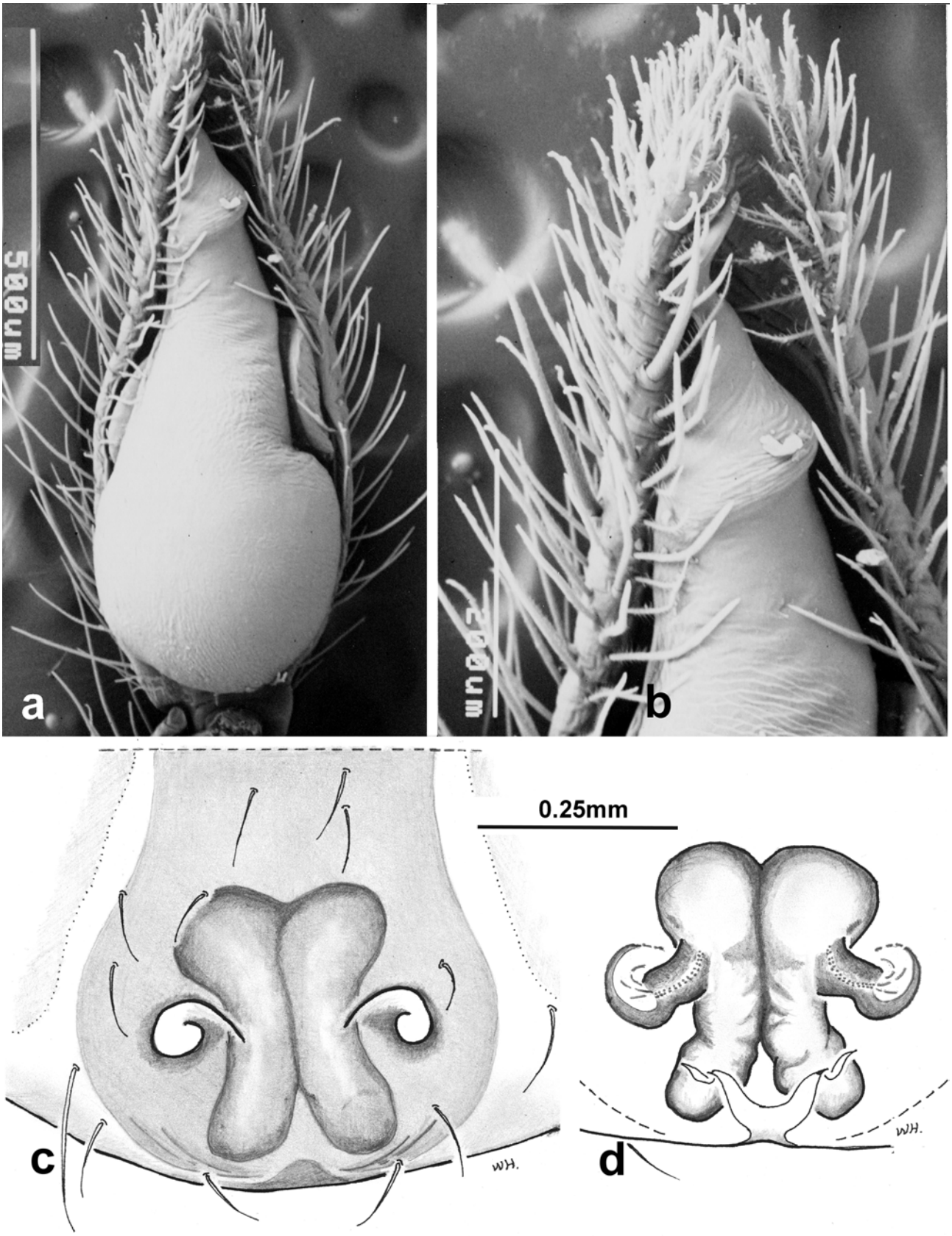


FIGURE 72. *Nucastia supunnoides* sp. nov., holotype male, QM S44068 (a, b), allotype female (c, d), QM S44067: a, b, palpal bulb and cymbium, ventral view; b. embolus tip, ventral view; c, d, epigyne, external (c), and internal (d).

Colour: carapace dark brown; femora I and II light brown; abdomen dorsally dark gray with anterior medial pallid band to one-third, a pair of broad C-shaped pallid marks with oval yellow zone anteriorly and narrow zone concentina band posteriorly, ventrally pallid. Carapace: with prefoveal triangular area of white hair. Legs: femora more hirsute and more feathery hairs than in ♂. Spines: I and II as in ♂. III: like ♂ but ti p2d1r2v2.2.2. IV: like ♂ but fe p2d2r1; ti p2d1r2v1.2.1. Palp: fe p1d2; pa p1d1.1 weak; ti p2r1; ta p2r1v2. Abdomen: small oval scute in anterior 1/8th. Colulus indistinct. Tracheal spiracle weakly sclerotised. Epigyne: apertures *ca*. three diameters apart with two banana-shaped lobes internally between them.

Distribution and Habitat. Known only from river banks near the Avon River, Victoria.

Nucastia fuscus (Hogg, 1900), nomen dubium, new combination

Medmassa fusca Hogg, 1900: 113. Holotype, juvenile ♀, Mount Macedon (37°23'S, 144°35'E), Victoria, BMNH 1907.2.24.18, examined.

Remarks. The holotype clearly belongs to *Nucastia* in the shape of the carapace, eye group and absence of spines on tibia I. However, it is a juvenile and until adult material from the type locality, Mt Macedon, is found, the species is listed as nomen dubium. The type locality has been subjected to catastrophic fires in 1983 and prior to that targetted collecting (for species described by Hogg) of that important locality by the Museum of Victoria has not been undertaken. The Museum of Victoria holds no material from the type locality; my two visits to the area prior to the 1983 fire yielded no corinnid material. The coordinates given are that of "Cheniston", Hogg's Macedon home, and after which the nemesiid genus, *Chenistonia*, takes its name.

Nyssus Walckenaer, 1805

Nyssus Walckenaer, 1805: 52. Type species by monotypy: *Nyssus coloripes* Walckenaer, 1805: 52, type lost, neotype here designated. The gender is masculine.

Anchognatha Thorell, 1881: 228. Type species by original designation, *Anchognatha avida* Thorell, 1881. **New Synonymy**.

Supunna Simon, 1897: 168 (type species by subsequent designation of Rainbow, 1911, *Agroeca insularis* L. Koch, 1873); Rainbow, 1911: 253; Petrunkevitch, 1928: 180; Roewer, 1955: 635; Bonnet, 1958: 4196; Platnick, 1989: 448. Type species discussed above in Nomenclatural Issues. **New Synonymy**.

Diagnosis. In species with a large paracymbial spine, males are readily distinguished from most similar genera and from males and females of *Battalus* in the absence of the large spines on the cheliceral fang mound, from *Iridonyssus* in the wider eye group and longer caput, and from *Poecilipta* in that the legs are all of similar size. Males of *Nyssus* species lacking a paracymbial spine differ from those of *Leichhardteus* in the extensive dorsal and ventral scutes.

Description. Carapace pear-shaped. White feathery hairs form spots or radial lines (Figs 16, b, c, 79a, b, d) but are often lost in ethanol. Lateral profile of carapace (Fig. 2a): high but more or less flat or slightly arched for its length; marginally highest point behind fovea at shallowly sloping posterior declivity; eyes set behind clypeus edge. Retrolateral face of large chelicerae smooth. Eyes (Fig. 16b, c): front row slightly recurved; back strongly procurved; group occupies about half headwidth; all eyes similar in size and opacity. Clypeus low, eye region curved gently. Labium anterior border thick, pallid. Serrula long, distal. Chelicerae: fang diagonal; pallid groove in front above fang; females with shield of thick hairs over front face of fang. Legs: femora I and II similar in thickness and overall size to III and IV. Pair of long erect bristles, one basidorsal and one apicodorsal on each of patellae and tibiae I–IV; none on palp. Trochanters I–III weakly notched, slightly deeper on IV. Femora III, IV with moderate to strong but always distinct predistal constriction (most species) or unmodified (*N. coloripes*, *N. jaredwardeni*). Scopula: I and II weak, thin on metatarsi, full on tarsi, not obscuring cuticle; III weaker still; IV entirely absent. Claw tufts: dense, small. Spines: distinct, strong but not on raised base, on all legs, except tarsi, and palp. Tibiae I and II ventrally with three pairs, weak in males. Scutes: tracheal spiracle small, teat-shaped, with sclerotised base bear spinnerets; ridge more evident in ♂. Males with ovate shield in anterior fifth of abdomen and sclerotised shield over booklungs (*Nyssus coloripes* group, most species); ventral scute present (most species) or

absent (*Nyssus semifuscus*, and some males of *N. albopunctatus*). Spinnerets: colulus represented by setose area (Fig. 7f). PLS and ALS short with domed tips; PMS digitiform; large spigots on PLS. Trichobothria: tarsi with two rows for full length. Male palp: tibia with low plate-like process prodistoventrally; strong bipartite RTA (*N. paradoxus*, Fig. 88a–c), strong spine-like (*N. wendyae*, Fig. 90a, b) or weak (most species) bristles retrolaterally; cymbium canoe-shaped with paracymbial spine (most species) or absent (*N. pseudomaculatus, N. jonraveni*, *N. yuggera, N. loureedi*); without spines or scopula; bulb a simple tear-shaped tegulum with embolus apically twisted. Epigyne: CO form pair of ovoid ridges, sometimes complete or closed, widely separated, and with additional groove and ridge below (*N. coloripes* group) or medially (*N. paradoxus*) to CO. Internally of four types: in *N. coloripes* group, with small spermathecal head and wide ducts to FD (Fig. 135); in *N. yuggera* and *N. loureedi*, simple narrow ducts with no enlargement of head and narrow duct to FD (Fig. 135); in *N. albopunctatus* group, very large spermathecal head with broad lobes to FD; and in *N. paradoxus* and *N. robertsi*, CD as long as epigyne and connects through short duct to hardly enlarged spermathecal head (Fig. 135).

Type species: *Nyssus coloripes* Walckenaer, 1805, by monotypy.

Distribution and Habitat. *Nyssus* occurs throughout Australia and both *N. coloripes* and *N. albopunctatus* have been presumably introduced to New Zealand on shipping containers. *Nyssus* is common in open habitats including heath, open eucalypt forest, grassland and savannah woodland, and may be found in sunny patches on the fringes of rainforest and vine thickets.

Included species: *Supunna albopunctatus* (Hogg, 1896), *Anchognatha avida* Thorell, 1881, *Nyssus coloripes* Walckenaer, 1805, *N. emu* sp. nov., *Agroeca insularis* L. Koch, 1873, *N. jaredwarden* sp. nov., *N. jonraveni* sp. nov., *N. loureedi* sp. nov., *N. luteofinis* sp. nov., *N. paradoxus* sp. nov., *N. pseudomaculatus* sp. nov., *N. robertsi* sp. nov., *N. semifuscus* sp. nov., *N. wendyae* sp. nov. and *N. yuggera* sp. nov.

Remarks. The gender of *Supunna* is feminine and that of *Nyssus* is masculine (Bonnet 1958). One of the two most common species of *Nyssus* is the highly ornate *Nyssus coloripes* (Fig. 73a–d, commonly known as *Supunna picta*); the other is *Nyssus albopunctatus* (Fig. 79b). *N. albopunctatus* is quite distinctive in the black legs and white spots on a jet black abdomen. A number of other *Nyssus* species have the same or a very similar pattern but all are morphologically quite distinct.

Species Groups

Nyssus is here broken into four species groups (*N. coloripes* group, *N. albopunctatus* group, *N. avidus* group and *N. paradoxus* group) based upon genitalic characters and patterns of hair on the carapace. Initially, it seemed a genus for each may be warranted but the defining characters are intermediate and that decision is reserved for a cladistic and molecular analysis.

Key to species of *Nyssus*

Males (of *N. insularis* and *N. robertsi* unknown)

1. Palp. Large retrolateral tibial apophysis (Fig. 88a–c) . . . . . *Nyssus paradoxus*
   Palp. No tibial apophysis (Fig. 90a, b) or tibial apophysis subtle (Fig. 90a, b) 2
2(1). Femora III and IV distally normal (Fig. 75b) 3
   Femora III and IV with distinct distal constriction (as in *Iridonyssus kohouti*, Fig. 6d) 4
3(2). Paracymbial spine on large basal process, within one diameter of cymbial base (Fig. 74a, g) . . . . . *N. coloripes*
   Paracymbial spine on small subbasal process but not very basal (Fig. 75d, e) . . . . . *N. jaredwardeni*
4(2). Paracymbial spine minute or absent (Fig. 85a, b) 5
   Paracymbial spine large, distinct (e.g., Fig. 90, 91a 8
5(4). Embolus apically with corkscrew-like tip (Figs 85a, 87c) 6
   Embolus very long or straight (Fig. 81a, g) 7
6(5). Embolus apically with very short, corkscrew-like tip (Fig. 85a) . . . . . *N. yuggera*
   Embolus apically longer, screw-like tip (Fig. 87c) . . . . . *N. loureedi*
7(5). Embolus, darkly sclerotised tip very long (Fig. 81g); white submedial bands on carapace small and separate (Fig. 81f) . . . . . *N. jonraveni*
   Embolus, darkly sclerotised tip short (Fig. 81a); white submedial bands on carapace long and almost continuous (Fig. 81e). . . . . *N. pseudomaculatus*

8(4). Embolus spiral large, open (Figs 90a, 91a) . . . 9
Embolus spiral smaller (Fig. 80a, b) . . . 10
9(8). Palpal tibia distally with long strong bristles, especially retrolaterally (Fig. 90a, b) . . . *N. wendyae*
Palpal tibia with similar bristles for length (Fig. 91a) . . . *N. emu*
10(8). Embolus apically with very short, corkscrew-like tip (Fig. 82a) . . . *N. avidus*
Embolus apically long spiral (Fig. 80a) . . . 11
11(10). Embolus distally long, slender tube-like (Fig. 80a, b); black spider with bold white markings on carapace and abdomen (Fig. 79b) . . . *N. albopunctatus*
Embolus short, converging quickly (Fig. 78a, b); brown spiders with no strongly contrasting markings . . . 12
12(11). Triangular paracymbial spine on distinctly raised basal process (Fig. 78a, b) . . . *N. semifuscus*
Digitiform paracymbial spine not on raised process (Fig. 77b) . . . *N. luteofinis*

Females (of *N. emu*, *N. jonraveni* and *N. wendyae* unknown)

1. Copulatory orifices large, almost contiguous or within one diameter (Figs 74c, 80d) . . . 2
Copulatory orifices at least one of their diameters apart (Fig. 81c) . . . 3
2(1). Abdomen black with median stripe and two pairs of pale spots posteriorly (Fig. 73a–d); femora III and IV normal distally (as in *N. jaredwardeni*, Fig. 75b) . . . *N. coloripes*
Abdomen dorsally black with 3–4 pairs of white spots; carapace black with white submarginal band (Figs 79b, 80c); femora III and IV with distinct distal constriction (as in *Iridonyssus kohouti*, Fig. 6d) . . . *N. albopunctatus*
3(1). Carapace with radial lines of white hair on black to brown cuticle (as in Figs 77e, 79d, 83a, 84a) . . . 4
Carapace with submarginal brackets of white hair (as in Fig. 81e, f) . . . 8
4.(3). Spermathecae with enlarged head (as in Fig. 82d) . . . 5
Spermathecae without enlarged head (Fig. 85d); Queensland . . . *N. yuggera*
5(4). Spermathecae with very large head (as in Fig. 82d) . . . 6
Spermathecae with small head (as in Figs 77d, 87b) . . . 7
6(5). Copulatory orifices large, spiralled (Fig. 82c) . . . *N. avidus*
Copulatory orifices very small (Fig. 87e) . . . *N. insularis*
7(5). Spermathecae contiguous for their length (Fig. 77d); Queensland . . . *N. luteofinis*
Spermathecae predistally curve ectally then contiguous distally (Fig. 87a, b); Lord Howe Island . . . *N. loureedi*
8(3). Epigyne with rounded V-shaped ridge between copulatory orifices (Fig. 89a) . . . 9
Space between copulatory orifices smooth (as in Fig. 76a) . . . 10
9(8). Median epigynal groove ends anterior to epigastric ridge (Fig. 89a, b) . . . *N. paradoxus*
Median epigynal groove extends to epigastric ridge (Fig. 89d) . . . *N. robertsi*
10(8). Femora III and IV with distinct distal constriction (as in *Iridonyssus kohouti*, Fig. 6d) . . . 11
Femora III and IV distally normal (Fig. 75b) . . . *N. jaredwardeni*
11(10). Abdomen dorsally black with 3–4 pairs of white spots; carapace black with white submarginal band (Fig. 81e) . . . *N. pseudomaculatus*
Abdomen brown in posterior half, without spots . . . *N. semifuscus*

Nyssus coloripes group

Diagnosis. Tibial apophysis absent on male palp; paracymbial spine strong (e.g., Fig. 74a, b). In females, CO form pair of ovoid ridges, sometimes complete or closed, widely separated, and with additional groove and ridge below, with small spermathecal head and wide ducts to FD; males with small dorsal scute (Fig. 75c), ventral scute present (most species) or absent (*N. semifuscus* sp. nov.); embolus simple, spiralled. Abdomen with paired or unpaired patches of yellow or white feathery hairs. Femora III, IV with (*N. luteofinis* sp. nov., *N. semifuscus* sp. nov.) or without (*N. coloripes* Walckenaer, 1805, *N. jaredwardeni* sp. nov.) distal constriction.

Included species: *Nyssus coloripes*, *N. jaredwardeni* sp. nov., *N. luteofinis* sp. nov., and *N. semifuscus* sp. nov.

Nyssus coloripes Walckenaer, 1805

(Figs 2a, 4f, 5c, 6c, 7f, 73a–d, 74a–g, 135. Map 37. Appendix 1)

Nyssus coloripes Walckenaer, 1805: 52, pl. 6, figs 57, 58. Type lost.
Agelena coloripes: Walckenaer, 1842: 25. Transferred to *Supunna* by Simon, 1897a: 168.
Agroeca picta L. Koch, 1873: 483. Syntypes in ZMB, ♀, juvenile, examined. Brisbane, Queensland. **New synonymy**.
Supunna picta: Simon, 1897a: 168; Forster, 1979: 94, figs 24, 152, 357–361; Davies, 1985: 119; Davies, 1986: 35, fig. 53; Platnick, 1989: 448

Supunna versicolor Simon, 1896a: 407; Simon, 1897: 168; Rainbow, 1911: 254. "Victoria int.[erior]". ♀ lectotype, 1 juvenile ♀ and 1 penultimate ♂ paralectotypes, here designated, from Victoria. MNHN 2.825. **New synonymy**.

Medmassa bicolor Hogg, 1900: 112; Rainbow, 1911: 256. 2 juveniles, 2 penultimate ♂, Macedon, Dividing Range, Victoria, BMNH, examined. **New synonymy**.

Supunna michaelseni Simon, 1909: 175; Rainbow, 1911: 253. Holotype juvenile ♀ in ZMB 24296, examined. Harvey, Western Australia. **New synonymy.**

Storena variepes Rainbow, 1912: 192; Davies, 1985: 119; Platnick, 1989: 448. First synonymised by Davies, 1985 with *Supunna picta*.

Storena auripes Rainbow, 1916: 45, pl. 14, figs 16–18. Type from Pentland, north-eastern Queensland, AMS KS6683, examined. **New synonymy**.

Material. Type of *Nyssus coloripes* not found in MNHN, ZMH, ZMB, BMNH. **Queensland:** neotype (here designated) of *Nyssus coloripes*, ♂, Sunday Creek Conservation Area, Mt Cotton, 27.598°S, 153.247°E, 40 m, open forest, pitfall, 8–11 Feb 2010, C. Burwell, A. Nakamura, QM S88291.

Non-type material. **Australia. Queensland:** 1♀, same data as neotype but 1 Dec 2009, malaise trap, QM & BAAM, QM S88321. (See Appendix 1 for full list of QM material also see and http://bie.ala.org.au/search?q=Nyssus+coloripes). **Western Australia**: 1♀, Lower Carwin Gorge, [21°29'S, 121°02'E], 16 Jun–2 Jul 1988, L.N. McKenna, WAM 98/1674. **Victoria**: 1♂, Kotupna-Barmah Rd at Ellingtons Bridge, 36°04'S, 145°02'E, 18–23 Jul 1994, G. Milledge & P. Lillywhite, MV K44362; 1♂, Lower Moira, 7 km SE Barmah, 36°04'S, 145°00'E, 17–22 Jan 1994, G. Milledge & P. Lillywhite, MV K4392; 1♂, Murray Valley Hwy, Deep Creek Xing, 36°08'S, 145°11'E, 2–7 Dec 1994, S. Hinkley *et al*., MV K4522; 1♂, 11.4 km SSE confluence Lindsay River & Mullaroo Creek, 34°13'S, 141°10'E, Jun 1986, A.L.Yen, MV K4710; 2♂ Goulburn River, 12 km SSE Nathalia, 36°09'S, 145°13'E, 17–22 Jan 1994, G. Milledge, MV K4531; 1♂, Murray Valley Hwy, Skeleton Creek Xing, 36°06'S, 145°11'E, 10–17 Apr 1994, MV K4439; 1♂, Kotupna-Barmah Rd at Ellingtons Bridge, 36°04'S, 145°02'E, 26–30 Jan 1995, S. Hinkley *et al*., MV K4402; 1♂, Deep Creek, 7 km SSE Barmah, 36°04'S, 139°58'E, 17–22 Jan 1994, G. Milledge & P. Lillywhite, MV K4393; 2♂, Murray Valley Hwy, 0.3 km NNW Walshs Bridge Rd, 36°06'S, 145°11'E, 10–17 Apr 1994, G. Milledge & P. Lillywhite, MV K4438. **Northern Territory**: 1♂, Darwin, 12°27'S, 130°50'E, 14 Oct 1913, MV K4340; 1♂, Uluru-Kata Tjuta NP, new bore 6 km SW Yulara, 25°17'S, 130°55'E, Oct 1994, Museum of Victoria Horn Expedition Centenary Survey, MV K4443; 1♀, Finke Gorge NP, 11.3 km S Hermannsburg, 24°03'S, 132°44'E, Oct 1994, Museum of Victoria Horn Expedition Centenary Survey, MV K4444. **Tasmania**: 1♂, TMAG J3570. **New Zealand**: NZAC collection: 1♀, NN: Nelson, Apr 1996, L. Richards, bit leg while in bed; 1♀, AK: Henderson, 36°53'S, 174°38'E, 10 Apr 1990, High School student; 1♀, AK: Kaukapakapa, 36°37'S, 174°30'E, 10 Nov 1991, D. Russell, bitten on arm in bed.

Diagnosis. Males and females are unusual in *Nyssus* in that there is no distal constriction on femora III, IV (as in Fig. 75b) and differ from *N. jaredwardeni* in the paired patches of white or yellow feathery hairs on the abdomen. Further females are unusual in the very large and almost contiguous copulatory orifices (Fig. 74c) and males in that the embolus tip is relatively longer and extends closer to the cymbial tip (Fig. 74b).

Description Neotype ♂ QM S88291

Carapace 3.00 long, 2.25 wide. Abdomen 2.81 long, 1.56 wide. Total length 5.7.

Colour: carapace with uniform cover of fine black hairs and erect black bristles. A line of bristles from fovea to eyes. White hair patches: on carapace, on fringe of carapace, overlaps with submarginal caput under eyes but not right across; reniform pair on back edge of caput; subovoid areas NNE and SEE of fovea; two long posterior strial bands. Patches on abdomen (from front to back): pair on lower front corners; lunate pair dorsally; long ovoid medially and reniform pair outside it; two subovoid pairs in quadrangle; small median pair and two larger lunate; hourglass patch above anal tubercle. Legs I and II with basally black femora (half, I; 5/6 of II) with stripes of white hair, otherwise orange yellow; legs III and IV black with stripes of white hair; palps dark orange to brown; abdomen ventrally paler than laterally. Eyes: AME almost touching ALE, AME wider apart; PME–PLE less than PME–PME. Chelicerae: brown, stout; fangs slightly diagonal, fang shield low with long slender bristles. 2R, 2P. Sternum: cordate, brown, with fine hairs; no precoxal sclerites. Maxillae brown with pallid anterior inner edge; labium subquadrate with pallid anterior edge. Legs: two white bands, one distal, one at just basal of midpoint; white tuft on outer coxae from above. Metatarsi with *ca*. 11 erect setae set out in each of 4 lines or dorsolateral and ventrolateral metatarsi. Femora III and IV unmodified distally. Trochanters I and II with shallow notches, deeper on III and IV. Apical bristle on all pedal patellae. Claws: as high as tufts; with three long teeth. Spines: all strong save for ventrally on tibiae I and II. I: fe pv1p2d3r1; pa 0; ti v2.2.2 attenuate; me v2.2 strong, none distal. II: fe

p2d3r1; pa 0; ti v2.2.2 attenuate; me v2.2. III: fe p2d3r2; pa 0; ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r2; pa long thick distal bristle; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d1; ti p2; ta p2d1. Palp: tibia with low plate-like process prodistoventrally; transverse groove on prolateral face; cymbium canoe-shaped with pointed process retrolaterally in basal third, just off twisted distal cymbial edge; bulb a simple tear-shaped tegulum with embolus apically twisted; oaracymbial spine distinct, on raised base. Abdomen: narrow dorsal scute for half length; without ventral scute, only epigastric region with scute; tracheal scute small, papular. Colulus distinct, triangular.

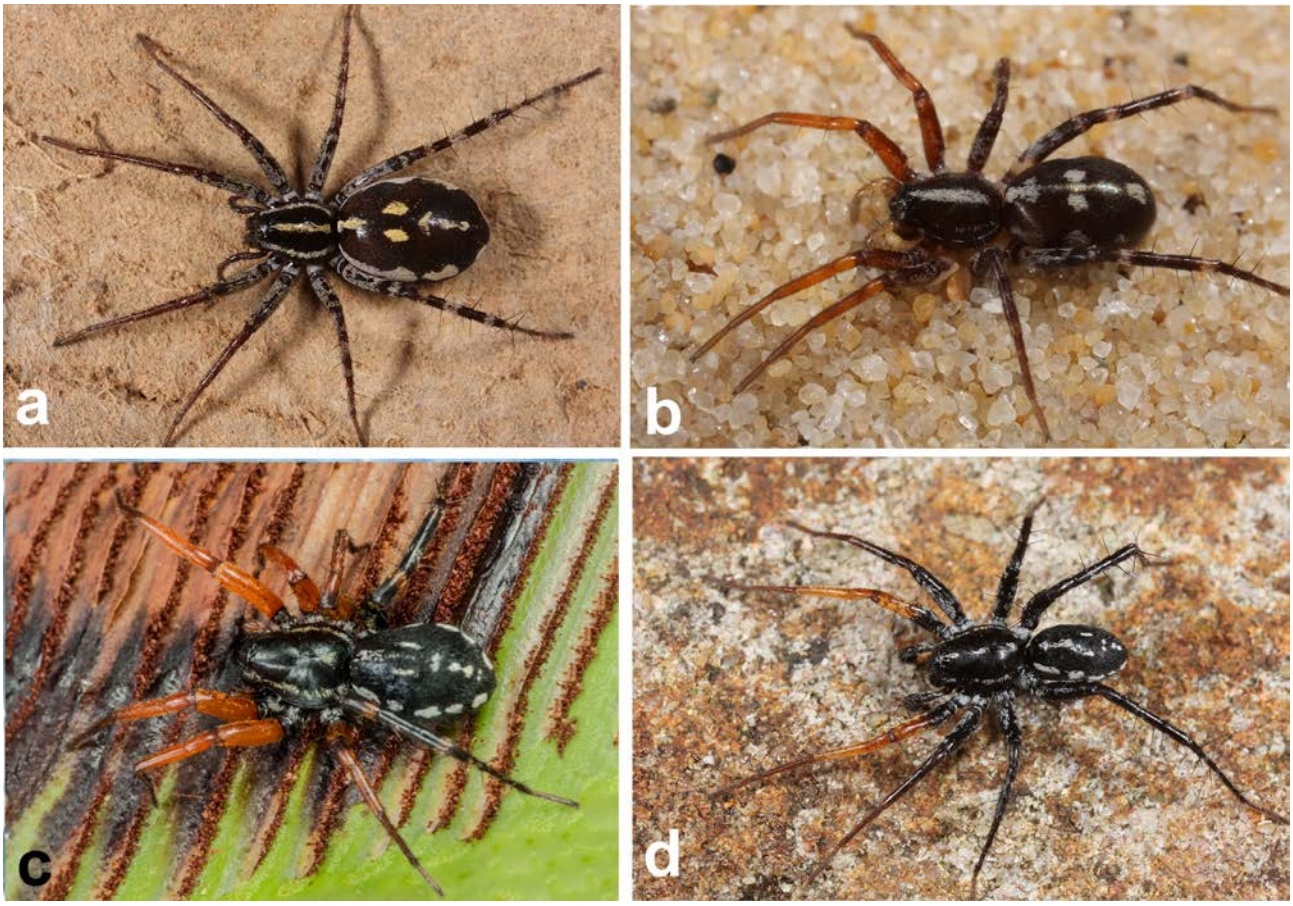


FIGURE 73. *Nyssus coloripes* Walckenaer, 1805. Habitus, four colour morphs. Images a, b, d, Greg Anderson; c, Robert Whyte.

Female QM S88321, As for ♂ but:

Carapace 4.18 long, 2.81 wide. Abdomen 5.31 long, 3.12 wide. Total length 9.2. Chelicerae: fang shield well delimited but only long weak bristles on edge. Legs: large white feathery hairs on pedal coxae, trochanters and femora. Spines: spines weak ventrally on tibiae I and II. No spines on ventral palpal femur. I: fe pv1p2d3r1; pa 0; ti v2.2.2 attenuate; me v2.2 strong, none distal. II: fe p2d3r1; pa 0; ti v2.2.2 attenuate; me v2.2. III: fe p2d3r2; pa d1 distal; ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p2d4r1; pa d1 distally; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d1.1; ti d1p2; ta p1r1 basal. Abdomen: dorsal scute small, on anterior face and less than 0.1 of length dorsally; tracheal scute indistinct. Black feathery hairs dominant, intermixed with golden scales dorsally. Epigyne: distinct paragenital brackets laterally. Pair of deep copulatory orifices with C-shaped crescentic ridge "facing" anterolaterad; spermathecae tri-lobed–anterior, central and posterior, smooth walled not highly convoluted.

Remarks. *Nyssus coloripes*, as here defined, is highly variable and forms a complex of closely related "species", which will only be resolved by a combination of behavioural, morphological and molecular studies.

The defining combination of characters (Fig. 63a–d) for *N. coloripes* are that the distal half of femur through to the tarsus of leg I (often also II) is yellow, all other legs are dark brown or black. Typically, the carapace is orange brown with a narrow stripe of white hair medially and submarginally on each side. Females have a small triangular scute anterodorsally on the abdomen; anteriorly a rectangular medial band of white hair is followed by a pair of white spots, a chevron, a short hammerhead-shaped spot and a terminal spot; laterally, an anterior large rectangle is closely followed by 3–4 white spots, none of which intrude on the ventral face; the venter has a well-defined V of

brown on darker brown. The eyes are all of a similar size with the posterior row so strongly curved that the PME are in a separate row. The female epigyne (Fig. 74c, d) is externally a pair of lunate or auricular ridges opening anteriorly; the ridges are well separated and lead to the copulatory openings; these are sometimes accompanied posteriorly by a pair of shallow ridges in the form of closed parentheses. The element of variability is the extent height and presence of the ridges, which are thought to facilitate the locking of the paracymbial spine in the male. The smaller ridges form part of the posterior edge of the ridge forming the CO and vary from absence, through a small shallow crescentic ridge to a deep distinct cavity.

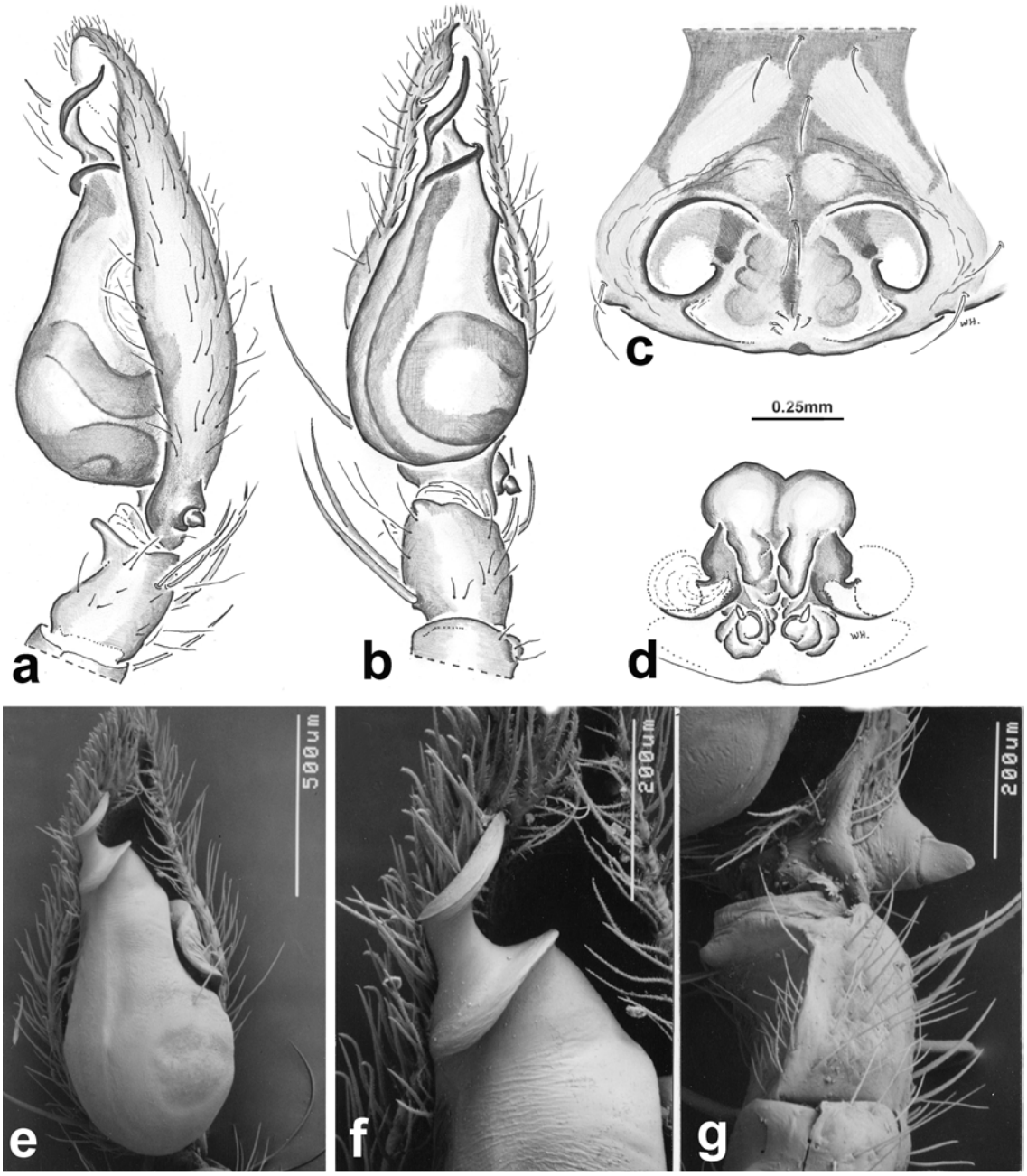
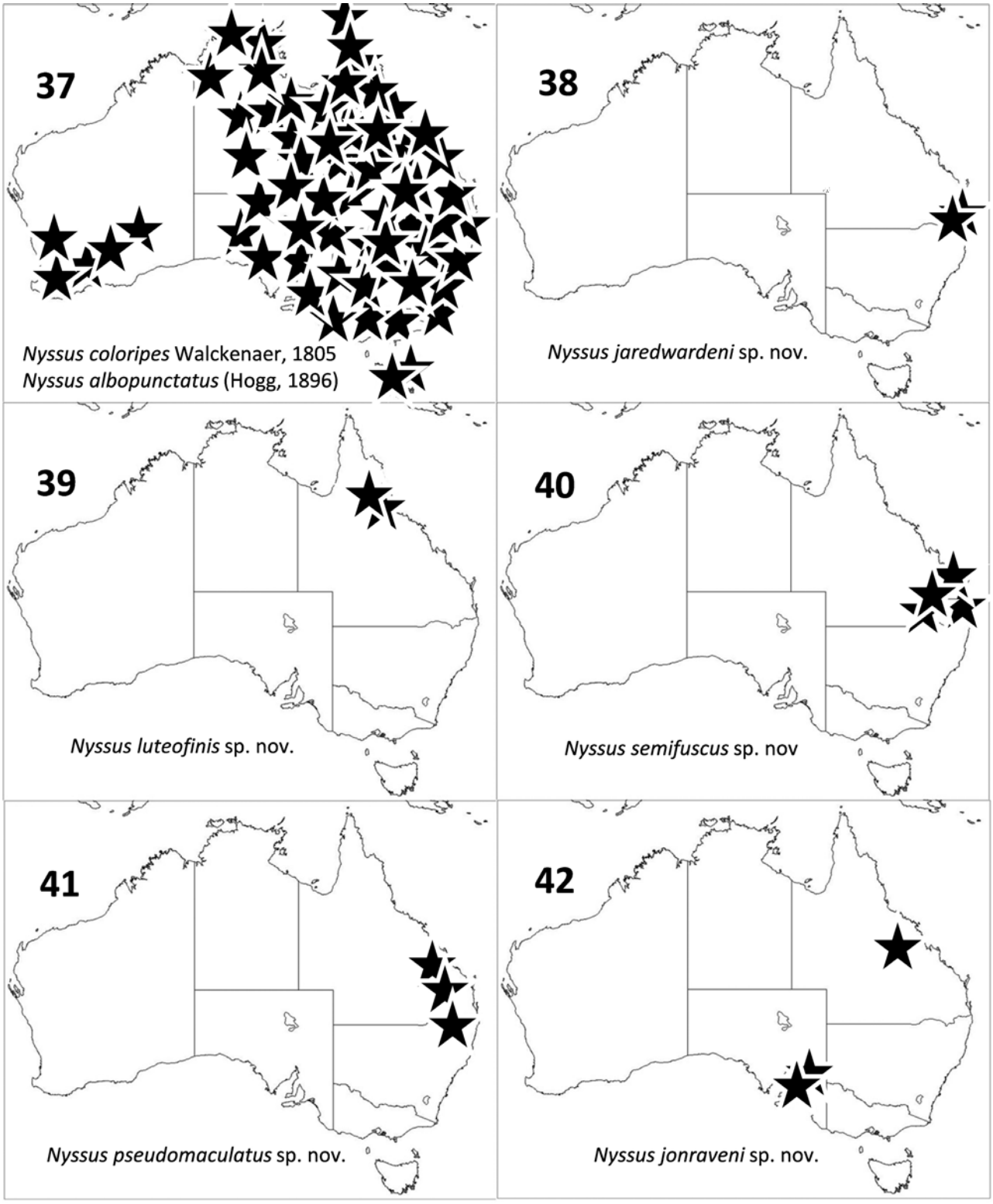


FIGURE 74. *Nyssus coloripes* Walckenaer, 1805, neotype male, QM S88291; female, QM S88321: a, b, palpal tibia, bulb and cymbium, retrolateral view (a), ventral view (b); c, d, epigyne, external (c), and internal (d). e–g, scanning electron micrographs, male palp: e, bulb and cymbium, ventral view; f, embolus tip, ventral view; g, paracymbial spine, ventral view.

The male palp of *N. coloripes* (Fig. 74a, b) is, like most of the castianeirines, quite simple with a large basal tegulum tapering to a spiralled distal embolus which tapers in a half turn to a point; the paracymbial spine is on a distinctly raised process and the spine itself is triangular. The dorsal abdominal scute on the male covers from one-third to half of the abdomen. The pattern of the dorsal abdomen of males may be quite reduced from females.



MAPS 37–42. Records of Australian species of *Nyssus* Walckenaer,1805.

The major limitation with the use of the dorsal abdominal pattern in *Nyssus coloripes* is two-fold: it is formed mainly by the presence of white feathery hairs which can be easily lost during collection and subsequent transport, and males may show a strong reduction in pattern

Distribution and Habitat. *N. coloripes* occurs widely in Australia (including Tasmania) and has also been found in New Zealand (introduced) but not yet on Norfolk, Lord Howe Island or New Caledonia. It is diurnally active on the ground in open forest or in open spaces near closed forest.

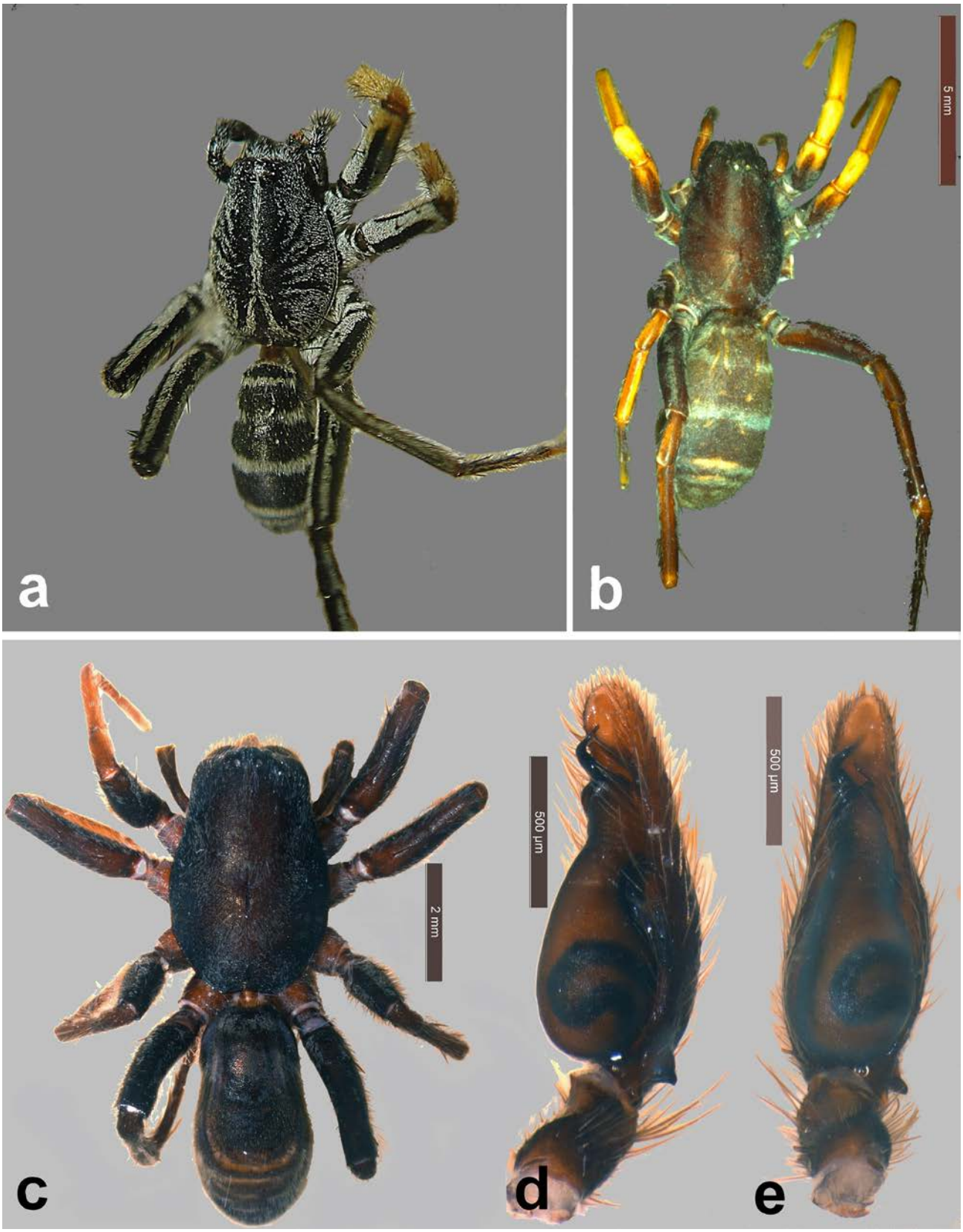


FIGURE 75. *Nyssus jaredwardeni* sp. nov., allotype female (a, b), QM S42063, holotype male, QM S55392 (c–e): a, b, habitus female, freshly dead (a), preserved for months (b); c, male habitus; d, e, tibia, palpal bulb and cymbium, retrolateral (d), and ventral view (e).

***Nyssus jaredwardeni* sp. nov.**
(Figs 16c, 75a–e, 76a, b. Map 38)

Material. **Queensland**: holotype ♂, Ipswich, Redbank Plains, 27°39'S, 152°51'E, eucalypt woodland, 7 Apr 2001, J. Warden, QM S55392. Paratype: **Queensland**: 1♀ (allotype), Middle Ridge, Toowoomba, 27°36'S, 151°57'E, 27 Apr 1998, J. Warden, in bark on tree in park, QM S42063.

Diagnosis. Males differ from those of *N. semifuscus* sp. nov. in that, viewed ventrally, the embolus base is a straight diagonal ridge (Fig. 75e); females differ from those of *N. insularis* (L. Koch, 1873) in that the head of the spermathecae is relatively smaller with a curved spermathecal stalk (Fig. 76b). Males and females differ from all other *Nyssus* species, except for the very distinctive *N. coloripes*, in that there is no distal constriction on femora III, IV (Fig. 75b).

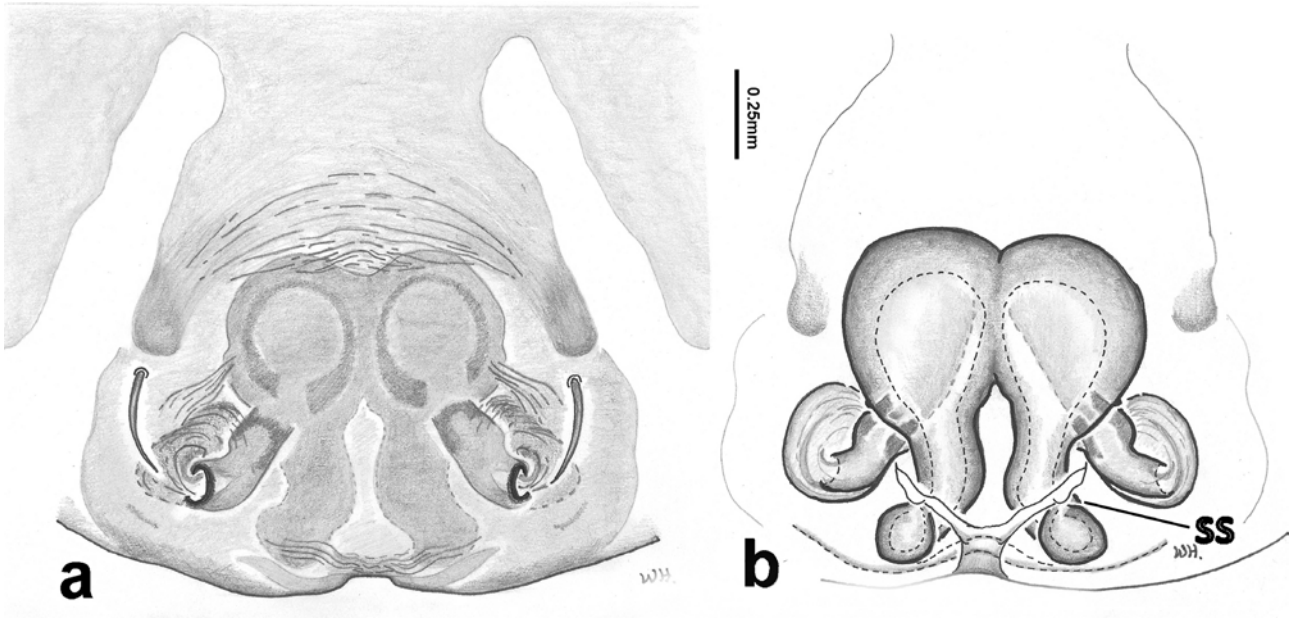


FIGURE 76. *Nyssus jaredwardeni* sp. nov., allotype female, QM S42063: a, b, epigyne, external (a), and internal showing spermathecal stalk (ss) (b),

Etymology. The species is named in honour of Mr Jared Warden, an avid spider enthusiast who collected and donated the types.

Description Holotype male QM S55392

Carapace 4.10 long, 2.70 wide. Abdomen 3.90, 2.25wide. Total length 8.0.

Colour: carapace dark brown with uniform cover of fine silver hairs; abdomen dark brown with dark brown dorsal scute (also with fine hairs) for 0.8 of length with procurved pallid stripes behind scute, abdomen laterally and ventrally brown with fine pallid longitudinal striations; ventral scute long, barrel-shaped; all femora dark brown, patellae and tibiae I and II orange brown, metatarsi light brown, tarsi yellowish; legs III, IV brown to black. Sternum dark brown, coxae lighter. Carapace: slender, widest between coxae II/III; caput low. Eyes of similar size, AER recurved, PER procurved; AME on low anterior mound.. Chelicerae: 2P 2R. Sternum and coxae slightly rugose; sternum narrow with slight points on anterior corners. RCH absent. Spines: none on patellae, reduced on ventral tibiae I and II. I: fe p1d2; ti v2.2.0; me v2.2. II: as I but ti v.2.0.0. III: fe p2d3r2; ti p2r2v2.2.2; me p2r2v2.2.4. IV: as III but fe p2d3r1. Palp: fe p1d2. Legs: femur III and IV distally unmodified. Palp: cymbium slender; large paracymbial spine; embolus a slow wide spiral.

Allotype Female QM S42063, like male except:

Carapace 4.69 long, 3.50 wide. Abdomen 5.63 long, 3.13 wide. Total length 10.3.

Colour: abdomen dorsally dark brown with small dorsal scute only on anterior face, with pallid bands of white hair medially and posteriorly across abdomen; all femora dark brown, patellae and tibiae I and II and distolateral femora yellowish, otherwise legs brown. Chelicerae: fang shield low, only with long fine hairs. Tracheal spiracle a broad curved mound. Spines: none on patellae, reduced on ventral tibiae I and II; I: fe pv1p2d3wr1–2; ti v1.1.2.1;

me v2.2. II as I but: fe (all weak) p2d3r1, ti v0.0.2.2. III: fe p3d3r3; as male. IV: as III but fe p2d3r1. Palp: fe p1d2. Epigyne: paragenital brackets present; externally, a pair of very widely small C-shaped ridges; internally, a broad copulatory duct leads to large pear-shaped head tapering gradually posteriorly.

Distribution and Habitat. Known only from open eucalypt forest at Ipswich and Toowoomba, just west of Brisbane, Queensland.

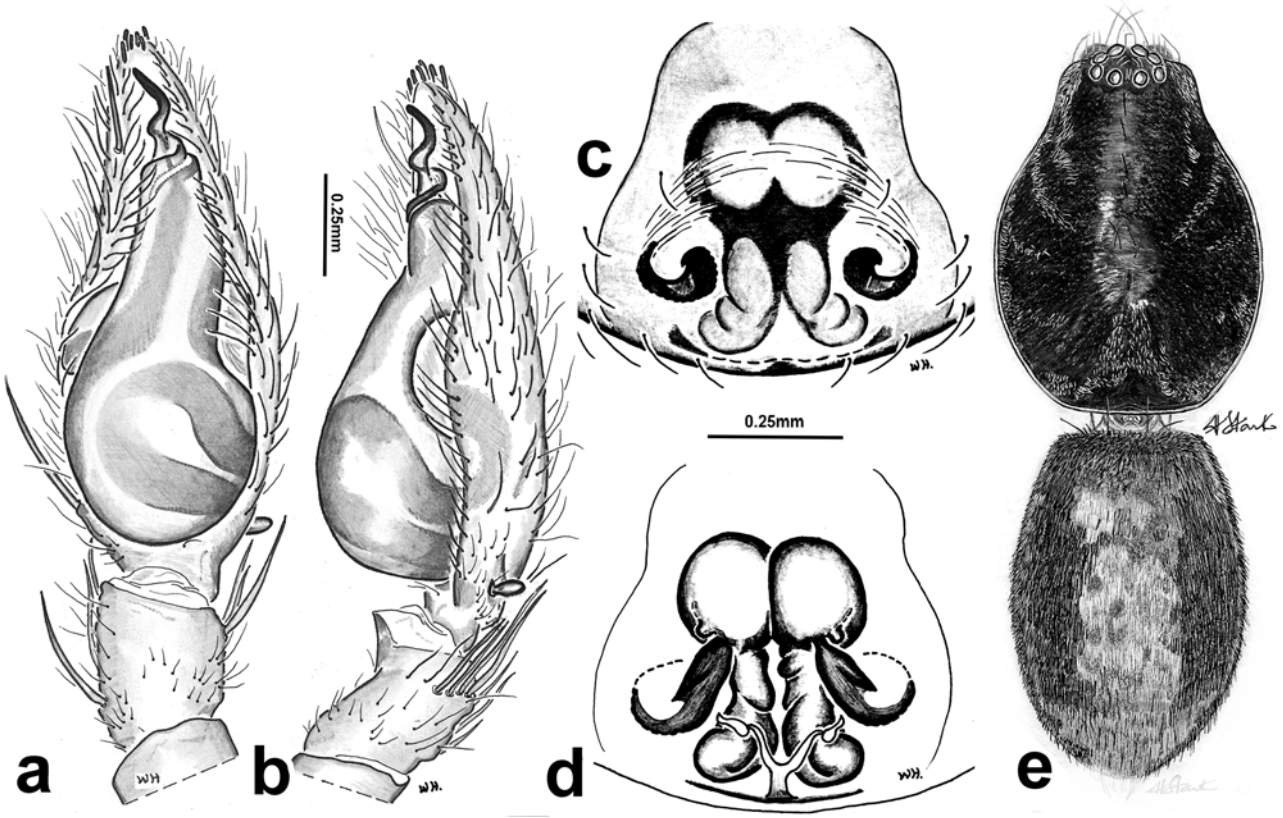


FIGURE 77. *Nyssus luteofinis* sp. nov., holotype male, QM S24015; allotype female, QM S29422: a, b, palpal tibia, bulb and cymbium (mirrored), ventral view (a), and retrolateral view (b). Female, c–e: epigyne, external (c), and internal (d); e, habitus.

***Nyssus luteofinis* sp. nov.**
(Figs 77a–e, 79a. Map 39)

Material. **Queensland**: holotype ♂, Crystal Cascades, 16°57'S, 145°40'E, pitfall, 23 Jul 1992–26 Nov 1992, R. Raven, P. & E. Lawless, M. Shaw, QM S24015. Paratypes: **Queensland**: 1♀, Buchan Point, 1 km NW, 16°44'S, 145°39'E, open forest, baited pitfall trap, 3–11 Feb 1999, G. Monteith, D. Cook, QM S50886; 1♀, Gordonvale, 17°11'S, 145°50'E, 23 Jan 1972, N. Clyde Coleman, QM S29417; 1♀, Davies Ck, 16°54'S, 145°32'E, 1 Nov 1972, N. Clyde Coleman, QM S29422; 1♂, Kuranda Range Rd, 0. 5 km up from Henry Ross Lookout, 16°50'S, 145°39'E, pitfall, 23 Jul–26 Nov 1992, R. Raven, P. Lawless, E. Lawless, M. Shaw, QM S21776; 3♂, Mt Cook, Quarantine Rd (NQ21), 15°30'S, 145°13'E, pitfall, 20 Jul–28 Nov 1992, R. Raven, P. Lawless, E. Lawless, M. Shaw, QM S24407; 1♀, Mt Molloy, 17 km S, 16°49'S, 145°22'E, low open woodland, baited pitfall trap, 6–9 Feb 1998, G. Monteith, D. Cook, QM S50888.

Diagnosis. Males differ from those of similar *Nyssus* species in having a digitiform (rather than triangular) paracymbial spine that is not on a process. Females differ from those of *N. semifuscus* sp. nov. by the smaller or similar size of the head of the spermathecae and the copulatory orifice that only has a vestigial lateral accessory lobe. Differs from *N. avidus* (Thorell, 1881) in both sexes having only one lateral white patch on the abdomen and having broad zone of paler brown hairs medially on the scute; also by the wide bands of white hair along the dorsal femora with large white patches basally and distally on the femora and distally on patellae III and IV.

Etymology. The species epithet alludes to the golden "tail" or abdomen.

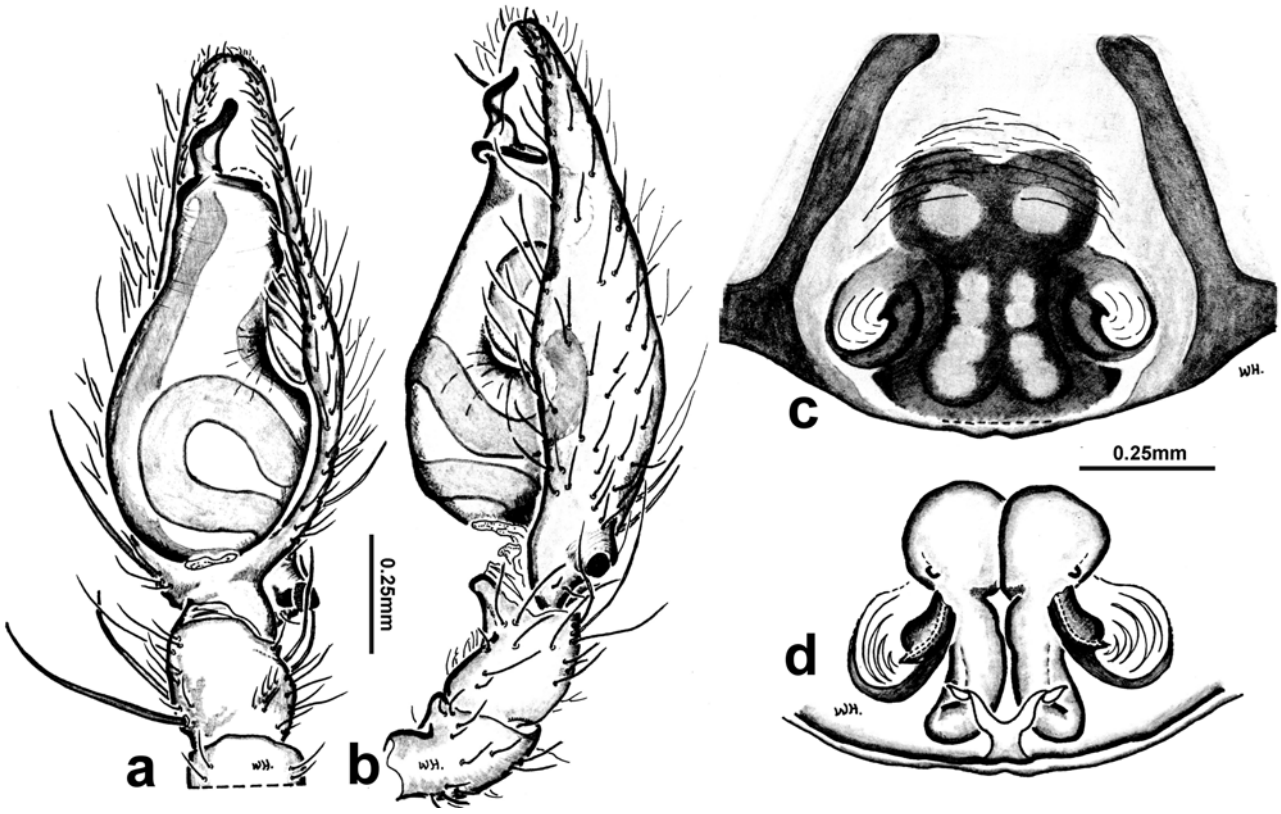


FIGURE 78. *Nyssus semifuscus* sp. nov., holotype male, QM S29495; allotype female, QM S29484: a, b, palpal tibia, bulb and cymbium, ventral view (a), and retrolateral view (b). Female, c, d: epigyne, external (c), and internal (d).

Description holotype male QM S24015.

Carapace 2.92 long, 2.16 wide. Abdomen 3.19 long, 1.90 wide. Total, 6.5.

Colour: carapace dark red brown with narrow radial bands of white hairs anteriorly along caput, two pairs laterally and one pair posteriorly; abdomen with dark red brown dorsal scute for 3/4 length with several areas of white feathery hairs forming no discernible pattern (some are rubbed off); behind scute a yellowish crescent or triangle pointed back; ventral scute red brown. Coxae, legs and venter red brown with bands of white hair distally on femora-tibiae III and IV. Carapace: cuticle and margins smooth. Black feathery hairs in uniform cover; fovea short, set forward of slope. Legs: white feathery hairs on lateral femora. Femur IV with strong predistal constriction, weaker on III. Scopula on metatarsi (distal) and tarsi. Spines: very strong on III and IV, weak on I and II. I: fe p1d3; ti v2.2.2w; me v2.2. II: fe p1d3r1; ti v1.1w; me v2.2. III: fe p2d3r2; pa r1; ti p2rd12v2.2.2; me p3r3v2.2.4. IV: fe p2d3r1; pa r1; ti p2d1r2v2.2.2; me p3r3v2.2.4. Palp: fe p1d2; pa p1; ti p1. Abdomen: petiolar collar absent, ventral scute long, narrows strongly posteriorly where a deeply indented trianguloid tracheal scute arises with long posterior cone; black bristles and white feathery hairs on scutes. Palp: femur viewed from below distally incrassate; cymbium slender, apex with cluster of thick black setae; paracymbial spine rounded, slender, digitiform, on small base; bulb with small subtegular lobe; constricts quickly from base to tightly spiralled pre-embolic coils with slightly curved embolus tip. Spermatic duct folds strongly axially.

Allotype female QM S29442. As ♂ except:

Carapace 3.05 long, 1.90 wide. Abdomen 3.11 long, 2.07 wide. Total, 6.8.

Colour: carapace red brown with dense, single layer of large white feathery hairs almost obscuring cuticle; abdomen with dense cover of mustard-brown feathery hairs with lateral crescents of white hair; scute very short, not contrasting; legs red brown with light pile of white feathery hairs laterally on femora, even lighter cover on patellae and tibiae not forming bands; legs I and II with brown femora, otherwise orange-brown (like *N. coloripes*); legs III and IV red brown; sternum red brown, genital scute brown, coxae ventrally brown with pallid centres; abdomen ventrally brown. Chelicerae: no enlarged fang setae. Legs: RCH a pinhole; short deep notch on trochanter IV, others shallow. Scopula on tarsi I–IV. Spines: weak on I and II. I: fe p2d3r1; ti v2.2; me v2.2. II: fe p2d3r1; ti

v0.2w; me v2.2. III: fe p2d3r2; pa d1w; ti p2rd12v2.2.1; me p3r3v2.2.3. IV: fe p1d3r1; pa r1; ti p2d1r2v2.2; me p3r3v2.2.1. Palp: fe p1d2; pa d1; ti p2d1; ta p2r1. Epigyne: a broad flat shield without paragenital brackets; fossae small deeply procurved. Internally with large spermathecal head with accessory. Abdomen: dorsal scute very short, just curving onto dorsum; tracheal scute semicircular with wide posterior ridge; distinct hirsute triangular colulus present. Post-epigastric sclerites very short.

Distribution and Habitat. Known only from rainforest from Mt Cook to the Kuranda area of the Wet Tropics World heritage area, northeastern Queensland.

FIGURE 79. *Nyssus* spp., a, b, habitus: a, *Nyssus luteofinis* sp. nov. male, photo: T. Jinks; b, *Nyssus albopunctatus* (Hogg, 1896), female, photo: R. Raven; c, *Nucastia supunnoides* sp. nov, female, photo: G. Anderson; d, *Nyssus avidus* (Thorell, 1881), female. photo: R. Raven.

***Nyssus semifuscus* sp. nov.**
(Fig. 78a–d. Map 40)

Material. **Queensland**: holotype ♂, Junction View, south of Gatton, 27°34'S, 152°17'E, 30 Dec 1984, A. Rozefelds, QM S29495. Paratypes: **Queensland**: 1♀, Binjour Plateau, Redvale Rd, 25°33'S, 151°28'E, open forest, flight intercept trap, 20 Dec 1997–26 Apr 1998, G. Monteith, QM S50885; 1♂, Boat Mtn (Jack Smith Environmental Park), 26°08'S, 151°58'E, vine scrub, flight intercept trap, 15 Dec 1994–26 Jan 1995, G. Monteith, QM S31983; 1♂, Boondall Wetlands (BCC1), 27°20'S, 153°04'E, melaleuca open forest, pitfall, 2 Dec 2003–2 Jan

2004, QMP, QM S54959; 1♀, Cedar Valley, south of Beaudesert, 27 Mar 2005, R.J. Raven, QM S68109; 1♂, Chelsea Rd Bushlands Reserve (BCC), 27°29'S, 153°11'E, ironbark open forest, pitfall, 1–30 Oct 2003, QMP, QM S79640; 1♂, 2 km from Cooran Post Office, Nov 2003, B. Schroffel, QM S61141; 1♀, Enterprise Mine (Blackbutt #2), 27°33'S, 153°27'E, blackbutt, 9 Jan 2002, QMP, QM S55982; 1♀, Enterprise Mine (Scribbly Gum #1), 27°36'S, 153°26'E, scrubby gully, 10 Jan 2002, QMP, QM S55495; allotype 1♀, Eumundi, 26°29'S, 152°57'E, Jun 1983–Nov 1983, C. Fearnley, QM S29483; 1♀, Fraser Island, Marloo Ave, 13 Oct 2007, G. Townsend, R. Raven, F. Pezzimenti, QM S44665; 1♂, Fraser Is: Orchid Beach (F04), 24°57'S, 153°19'E, heathland, pitfall, 20 Aug–17 Dec 1997, R. Raven, P. Lawless, QM S41756; 1♂, Fraser Is: Orchid Beach (F04), 24°57'S, 153°19'E, heathland, pitfall, 20 Aug–17 Dec 1997, R. Raven, P. Lawless, QM S49943; 1♀, Gold Ck Reservoir, 27°27.9'S, 152°52.5'E, open forest, pitfall, 20 Apr–26 May 2003, C.J. Burwell, QM S62898; 1♂, Greenbank, 27°41'S, 153°01'E, clearing & buildings, 8 Jan 2009, W. Hebron, QM S22910; 1♂, Isla Gorge Lookout, 3.6 km NE, 25°10'S, 150°00'E, vine scrub, flight intercept trap, 21 Sep–15 Dec 1997, G. Monteith, D. Cook, QM S44774; 1♂, Keysland, 26°12'S, 151°44'E, open forest, intercept flight trap, 5 Dec 1994–26 Jan 1995, G. Monteith, QM S34860; 1♂, Kuraby Bushland, 27°36'54"S, 153°05'06"E, pitfall, 4–24 Feb 2009, T. Churchill, QM S87740; 1♂, Lake Broadwater, Site 3, 27°21'S, 151°06'E, pitfall, 26 Mar–17 May 1985, Qld Museum Party & M. Bennie, QM S79283; 1♂ 1♀, Proserpine, Airport Drive, site XY12, 20°29'S, 148°34'E, closed woodland, pitfall, 5 Nov 2007–13 Feb 2008, R.J. Raven, QM S85309; 1♂, Redland, Hilliards Ck, near South St (RHC1), 27°33'S, 153°14'E, scribbly gum, open forest, pitfall, 21 Nov–19 Dec 2008, QMP and BAAM, QM S86912; 1♀, Redlands, Hilliards Ck, near Weippin Rd (RHC2), 27°32'S, 153°15'E, heath and scribbly gum, malaise trap, 19–27 Dec 2008, J. Stanisic, QM S79392; 1♂, same data but 19 Jan–19 Feb 2009, QMP and BAAM, QM S79361; 1♂, Tewantin (Noosa Pony Club), 26°25'S, 152°59'E, 6 Jan 1998, QM S50879; 1♂, Toomba Homestead site, moist litter pockets, 19°58'S, 145°34'E, basalt ridge with *Brachychiton*, litter, 15 Feb 2007, R.J. Raven, QM S79273; 1♂, Woodmillar (East), 25°41'S, 151°36'E, vine scrub, flight intercept trap, 10 Oct–17 Dec 1998, G. Monteith, D. Cook, QM S50877; 1♀, Yungaburra, [17°16'S, 145°35'E,] 19 Sep 1976, R. Mascord, AM KS15621.

Diagnosis. Males are similar to those of *N. jaredwardeni* sp. nov. in the distinct process on the paracymbial spine and the quickly tapering tip of the embolus (Figs 78a, b) and differ in that the base of the embolus is curved and convex, not diagonal and straight. Females differ from those of *N. luteofinis* sp. nov. in that the head of the spermathecae is distinctly larger than the copulatory orifice and the lateral accessory lobe is distinct (Fig. 78d). Differs from *N. coloripes* in the absence of pattern on carapace and abdomen, golden "rump" and smaller PME and from males of *N. yuggera* by the absence of a ventral abdominal scute. Females differ from those of *N. jaredwardeni* by the small head of the spermathecae and relatively longer spermathecal stalks (Fig. 78d).

Etymology. The species epithet alludes to the brown colour of the posterior half of the abdomen.

Description holotype male QM S29495

Carapace 2.80 long, 1.80 wide. Abdomen 2.80 long, 1.60 wide. Total length 5.7.

Colour: carapace dark brown with slightly darker bands radially and along interstrial ridges. Femora all dark brown; patellae–tarsi I and II yellowish, darker on III and brown on IV; abdomen with weak red brown scute dorsally for half length, posterior half brownish cream, all with dense pile of golden feathery hairs; ventrally, sternum red brown, all coxae brown, genital scute red brown, abdomen light brown median quadrangle with darker flanks. Carapace: smooth with light uniform cover of feathery white hairs; fovea short, deep, just in front of gentle posterior slope. Eyes: PME similar size to PLE. Chelicerae: dentition 2R, 2P; fang and groove short. Wide gap between cheliceral face and adjacent maxillary face. Sternum: cordate, rounded edges with slight intercoxal projections between I/II and II/III; anteriorly with notches just behind edges of labium. Legs: RCH absent or very small (very small in *N. coloripes*). Coxal bases with distinct processes. Femur IV with slight distal constriction. Light scopula on metatarsi and tarsi I and II. Spines: I: fe pv1p2d3r1; ti v2.2; me v2.2. II: fe p1d3r1; ti v1.2.2; me v2.2. III: fe p2d3r2; pa d1 distal ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r2; p d1 distal ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d2 (w); ti p2w; cymbium basal 1w. Abdomen: dorsal scute weakly defined for *ca.* 1/2 length; genital scute strong; collar absent; no ventral scute, tracheal scute small, weak, a wide ridge. Colulus a wide, small hirsute triangle. Palp: tibia with proventral trough; cymbium roughly symmetrical from above; paracymbial spine short, curved, conical, on large raised base; apex pallid with cluster of short thick setae; bulb like *N. coloripes*.

Allotype female QM S29483 As ♂ except:

Carapace 4.00 long, 2.64 wide. Abdomen 3.60 long, 2.01 wide. Total length 7.7.

Colour: carapace dark red brown with uniform cover of broad white hairs, coxae I and femora dark brown with yellow areas distally (I and II) or basally (IV); patellae–tarsi I, II yellowish, III light brown, IV dark brown with pallid apical patellae and tibiae; abdomen dorsally with trianguloid reddish scute flanked by small area of white hair anteriorly beside scute and large area laterally beside end of scute, dense bush of golden hair medially and across posterior half; ventrally, coxae I and sternum dark brown, coxae II–IV yellowish; laterally a broad white sash joins dorsal and ventral edge, comma-shaped white area mid-laterally and a yellow spot laterally, just anterior to spinnerets; genital scute red brown, ventral quadrangle brown. Chelicerae: slightly porrect, long with short fang and furrow, dentition 2R, 2P; no enlarged fang setae. Legs: femora–tibiae with feathery hairs. Spines: I: fe pv1p2d3r1; ti v2.2; me v2.2. II: fe p2d3r2; ti v1.1; me v2.2. III: fe p3d3r1; pa d1; ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r2; pa d1; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d2; ti p2d1; ta p2d1. Epigyne: paragenital weakness absent; roughly triangular with lateral fossae separated by wide septum. Abdomen: small rounded triangular scute dorsally for 1/8 length; tracheal scute indistinct.

Distribution and Habitat. Known only from open forest at Isla Gorge, Eumundi, Junction View and Stanthorpe, southeastern Queensland and Yungaburra, northern Quuensland.

Nyssus albopunctatus group

Diagnosis: Male palp without tibial apophysis, paracymbial spine strong; embolus simple spiralled, or straight tubular. Females with pair of CO leading to spermathecal head or variable size; males with or without ventral scute. Carapace black with fringe on submarginal white hairs; males with large dorsal scute and ventral scute (but absent in rare males of *N. albopunctatus*); abdomen dorsally black with paired patches of white feathery hairs (most species).

Species included: *Supunna albopunctata* (Hogg, 1896), *N. pseudomaculatus* sp. nov., and *N. jonraveni* sp. nov.

Nyssus albopunctatus (Hogg, 1896), new combination

(Figs 79b, 80a–e, 135. Map 37. Appendix 1.)

Liocranum albopunctatum Hogg, 1896: 328 (published February, 1896); Hogg, 1900:111. Central Australia, Illamurta. Holotype ♀, BMNH, 1924.3.1.844, examined.

Supunna funerea Simon, 1896a: 407 (published September–October, 1896); Simon, 1897b: 160, 167–8; Rainbow, 1911: 253. Holotype, ♀, Launceston, Tasmania, MNHN 4.178, examined. **New synonymy**.

Supunna albopunctata: Simon, 1897: 168; Rainbow, 1911: 256.

Storena albomaculata Rainbow, 1902: 485; Rainbow, 1904: 323; Rainbow, 1911: 148; holotype female, AMS, examined. **New synonymy**.

Supunna albomaculata: Davies, 1985, 119; Platnick, 1989: 448.

Material. Australia: (see Appendix 1 for list of QM material and http://bie.ala.org.au/search?q=Nyssus+albopunctatus). **New South Wales:** 1♂1♀, Jamieson Park, Narrabeen, 33°43'S 151°17'E, woodland litter, M.R. Gray, H.M. Smith, AM KS44524.**Tasmania**: 1♂, Pioneer, Old Chum Dam, scrub woodland, L. Boutin, TMAG: 1♀, 1♂, 24 Oct 1989, TMAG; 1♂, 19 Dec 1989, TMAG; 1♂, 23 Jan 1990, TMAG; 1 juvenile ♀, 21 Nov 1989, TMAG. **Northern Territory**: 1♀, Illamurta (spring), 24°18'S, 132°41'E, May–Jun 1894, Horn Expedition, MV K161. **New Zealand**. NZAC collection: 1♂, AK: Ranui, 36°52'S, 174°36E, on carton from Australia, 10 Apr 1990; 1♂, NN: Nelson, 41°16'S, 173°17'E.

Diagnosis. Males and females differ from those of other species in the group by the more numerous (10) patches of white hair dorsally on the abdomen (Fig. 80c); males differ from those of *N. pseudomaculatus* sp. nov. and *N. jonraveni* sp. nov. in the presence of a paracymbial spine (Fig. 80a) and from those of *N. paradoxus* sp. nov. in the absence of a large RTA (Fig. 80a). Females differ from all other *Nyssus* species in the combination of the strong constriction on femur IV (as in *I. auripilosus* sp. nov., Fig. 42d) and the large CO (Fig. 80d).

Description Male QM S62277

Carapace 3.75 long, 2.69 wide. Abdomen 3.81long, 2.50 wide. Total length 7.7.

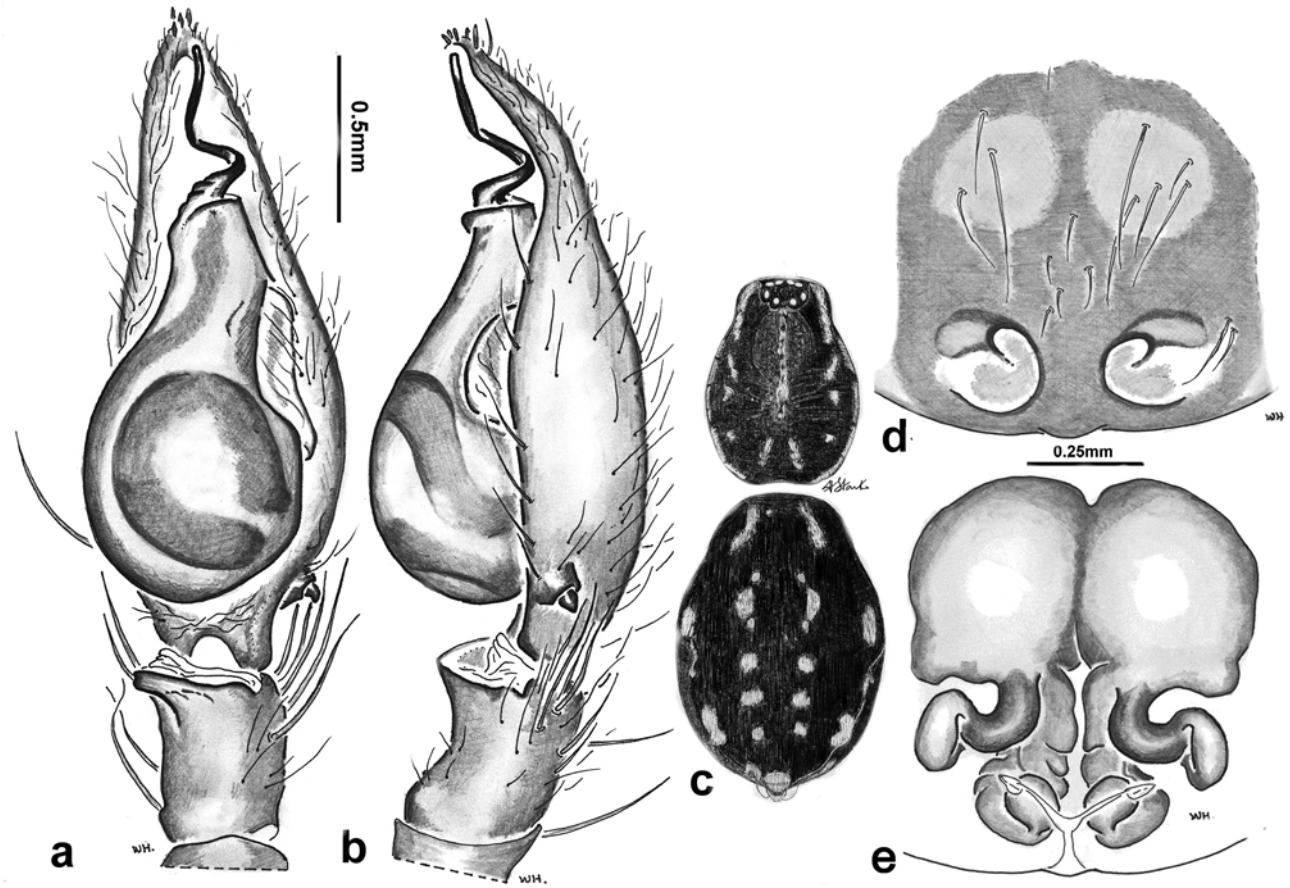


FIGURE 80. *Nyssus albopunctatus* (Hogg, 1896), male and female, AM KS28939: a, b, palpal tibia, bulb and cymbium, ventral (a) and retrolateral (b) views; c, habitus, female; d, e, female, epigyne, external (d), and internal (e).

Colour: carapace dark red-brown with light cover of fine black hairs and dense patches of white hairs forming narrow carapace margin and paired markings: long pair widely flanks eyes to half caput length, three irregular pairs laterally; abdomen dorsally dark red brown with extensive scute also decked in both black and white hairs: a pair in lower lateral face, larger pair on anterior shoulders, five successively smaller pairs converging posteriorly, two pairs in mid-lateral abdomen and in posterior third; ventral abdomen with dark red-brown scute; legs dark red brown, coxae dorsally with silver hairs; small white tufts on distal tibia and patellae III and IV; sternum, maxillae and labium dark red-brown, coxae lighter, inner maxillary margin pallid; white tuft high on each chelicera; white bands basally on femur IV. Carapace: pear-shaped; caput and thorax raised. Line of long erect black bristles from PME to fovea and irregular line on lateral caput along contour anteriorly. Chelicerae with fang shield; dentition 2R, 3P on long ventral groove. Maxillae: linear serrula; rectanguloid with shallow groove. Labium long, semicircular. Sternum broadly cordate with fine cover of black hair. Legs: femora I and II deepest in basal third; IV and less so III with strong glabrous constriction ventrally in distal quarter. Femora I–IV with white feathery hairs basolaterally. Shallow notches on trochanters I–IV. Feathery hairs on all leg segments except coxae, trochanter and palp, none evident on dorsal abdomen but band near epigastric furrow. No preening combs. Spines: strong on III and IV, very weak on tibiae I and II. I and II: fe p1d3r1; pa 0; ti v2.2.0; me, v.2.2.0. III: fe p2d3r2; pa 0; ti p2r2v2.2.2; me p3r3v2.2.1. IV: fe p1d3r2; pa 0; ti p2d1r2v2.2.2; me p3r3v2.2.1. Palp: fe p1d2; pa p2w; ti p2w; ta 0. Scopula: metatarsi I and II with pairs of light lateral scopula for length; III and IV, as I but only for distal half; distinct and entire but not dense on tarsi I and II; in lateral bands for length of III and IV. Tufts: short, dense, vertical, encloses claw and with basal, longitudinally directed separate cluster. Abdomen: extensive dorsal scute extends down anterior and lateral face for half-height and for *ca.* 0.75 of abdomen dorsally; laterally not joined to ventral or genital scute; pedicel sclerotised but not joined to abdomen except by unsclerotised tissue. Post-epigastric sclerites deep, for half ectal length of book-lung; ventral scute rectanguloid, with soft edges with small feathery hairs; tracheal scute broadly conical with bluntly rounded tip. Spinnerets inverted. Palp: tibia short with ventral saddle

forming proventral flange; no RTA but diagonal line of four long bristles at that point; cymbium long, narrow with long tapering apical cone; retrobasally with small mound capped with small triangular spines; apical cymbium with *ca.* 6–8 short, thick bristles and 5–6 long thick black bristles basodorsally; bulb with expanded haematodocha, narrow subtegular lobe lies in lateral concavity of tegulum which is basally bulbous, apically tapering gradually to spiralled embolus with basal keel.

Female QM S62277

Carapace 4.00 long, 3.13 wide. Abdomen5.50 long, 3.75 wide. Total length 9.6.

Colour: carapace as male but uniformly with adpressed black feathery hairs, abdomen faded but others as in Fig. 80c. Legs black with white bands on all sub-basal and distal femora, distal patellae, and distal tibiae III and IV. Chelicerae: fang shield low but distinct with irregular line of *ca.* 20 long black sinuous and externally dentate hairs overlying base of fang. Legs: coxae I–IV with transverse dorsal saddle; III and to lesser extent IV with distinct conical mound mid-dorsally; coxae III and IV with posterior sclerite. Femora III and IV as in male. Spines: none on pedal patellae; very weak on tibiae I and II; femoral spines strong. I: fe p1d3; ti v2.2.0; v2.2.0. II: like I but fe: p1d3r1. III: fe p2d3r1; ti p2r2v2.2.2; me p3r3v2.2.3. IV: fe p2d2r1; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d1; ti p2d1; ta p2r1v2w. Scopula: for length of metatarsi I and II but medially weak; entire for length of tarsi I and II; in distal third of metatarsi III, for length of tarsi III but widely divided; entirely absent on IV. Palp: with three teeth in basal third of claw, strongly bent distal of teeth, no tuft, dorsal tarsus with band of short thick bristles. Abdomen: dorsally with uniform cover of dark feathery hairs; dorsal scute small, triangular, slightly on anterior face and only for 0.1 of length; no ventral scute; tracheal scute small with broad ridge; genital scute like male. Spinnerets: PLS slightly smaller than ALS; PMS slightly smaller than PLS. Spigots: PLS, two large cylindrical; PMS, three large cylindrical; ALS, field of smaller pyriform and four longer major ampullate on inner edges. Colulus an isolated sclerotised hirsute triangle of cuticle, not a lobe. Epigyne: long trapezoidal, narrower at front through the cuticle of which two large spermathecae are evident; posteriorly a pair of lunate ridges set biconcave form median septum. Paragenital weakness not isolating epigyne. Post-epigastric sclerites deep, almost semicircular, extending for 0.7 of booklung aperture.

Remarks. Males occur in one of two forms in which the rectanguloid scute on the ventral abdomen may be present or apparently absent. Males of both forms are sympatric in at least some sites taken in the same sample. No other consistent difference has been found between the two forms. It would appear that, in males, the degree of sclerotisation of the scute is not consistent and this may be related to the time since moult: males with ventral scute weak or not hardened are presumed to have been taken soon after the moult.

This is the third combination of names commonly applied to this species. Davies (1985) used *Supunna albomaculata*, Raven & Lawless (1995) and Raven & Seeman (2007, 2008) used *Supunna funerea* and, for the first time, the combination *Nyssus albopunctatus* is followed here.

Distribution and habitat. As with *N. coloripes*, *N. albopunctatus* is found in open forest habitats throughout Australia, including Tasmania, as well as parts of New Zealand.

***Nyssus pseudomaculatus* sp. nov.**

(Fig. 81a–e. Map 41)

Material. **Queensland**: holotype ♂, Nob Ck, 22°52'S, 150°37'E, pitfall, Jan 1994, D. Wallace, P. Healy, QM S39570. Paratypes: **Queensland**: 1♂, Gayndah, summit, 25°36'S, 151°32'E, open forest, pitfall, 18 Dec 1998–27 Jan 1999, G. Monteith, C. Gough, QM S50357; 1♂, Gurgeena Plateau, 25°27'S 151°22'E, open forest, pitfall, 10 Oct–19 Dec 1998, G. Monteith, C. Gough, QM S51385; 1♂ 1♀, Humphery Racetrack, 25°38'S 151°30'E, open forest, pitfall, 18 Dec 1998–27 Jan 1999, G. Monteith, C. Gough, QM S51306; 1♂, Illaweena Street, Drewvale (BCC1), 27°38'S, 153°03'E, scribbly gum, heath, pitfall, 1 Dec 2003–2 Jan 2004, QMP, QM S79641; 1♂ 1♀, same data but, 2–30 Jan 2004, QMP, QM S79642; 1♂ 1♀ (allotype), Lake Broadwater (Site 7), 27°21'S, 151°06'E, pitfall, 24 Nov 1985–3 Jan 1986, QMP & M. Bennie, QM S79928; 1♂, Nipping Gully (Site 4), 25°40'S, 151°26'E, open forest, pitfall, 9 Oct–18 Dec 1998, G. Monteith, C. Gough, QM S51384; 1♂ 1♀, Nob Ck, 22°52'S, 150°37'E, pitfall, Jan 1994, D. Wallace, Healy, QM S32623; 1♂, Taroom district, Boggomoss No 3, 25°26'S, 150°01'E, baited flight trap, 12 Nov 1996–12 Jan 1997, G. Monteith, D. Cook, QM S43689; 1♂ 1♀, Taroom, Boggomoss No.3, near, 25°26'S, 150°01'E, pitfall, 11 Nov 1996–12 Jan 1997, P. Lawless, QM S36631. **New South Wales**: 1♂, Sugarloaf Rd on ridge, Drake, 28°51'S, 152°26"E, 246m, 1 Dec 2009–9 Feb 2010, I. Gray, QM S97592.

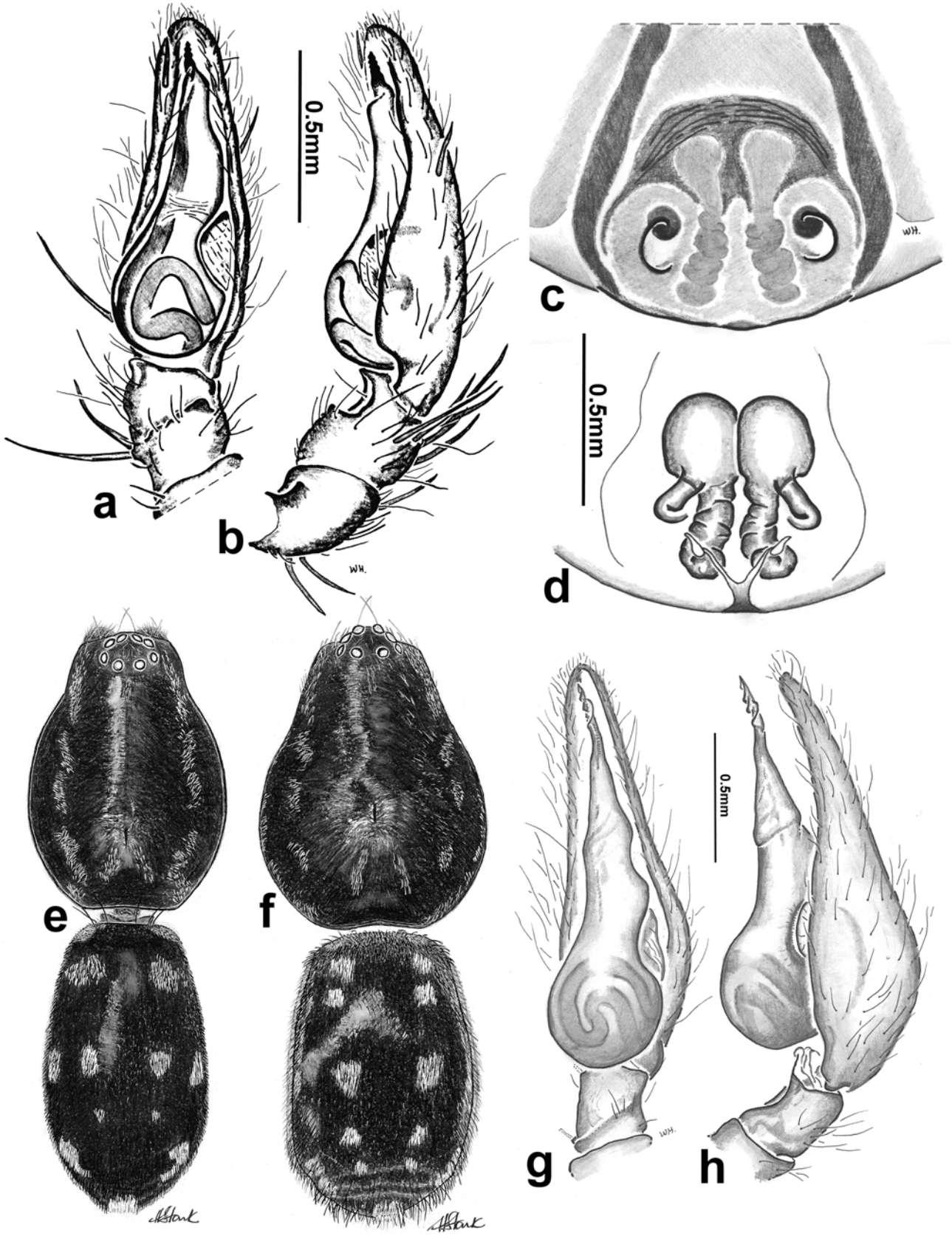


FIGURE 81. *Nyssus* spp. nov. a–e, *N. pseudomaculatus* sp. nov.: a, b, holotype male, QM S79928, palpal tibia, bulb and cymbium, ventral (a) and retrolateral (b) views; c, d, allotype female QM SS79928, epigyne, external (c), and internal (d); e, female habitus. f–h, *N. jonraveni* sp. nov., holotype male, QM S39575: f, habitus; g, h, palpal tibia, bulb and cymbium, ventral (g) and retrolateral (h) views.

Diagnosis. Males differ from those of *N. jonraveni* sp. nov. in the much shorter embolus apex (Fig. 81a) and from other species in the group in the absence of a paracymbial spine; females differ from those of *N. albopunctatus* in the smaller C-shaped (left) CO (Fig. 81c) and smaller spermathecal head (Fig. 81d).

Etymology. The species epithet alludes to the similar dorsal abdominal pattern of this species to the maculate *N. albopunctatus*.

Description holotype male QM S39570

Carapace 3.44 long, 2.48 wide. Abdomen 3.28 long, 2.00 wide. Total length 6.7.

Colour: carapace dark red brown darkened by uniform cover of large black feathery hairs; wide broken band laterally and two narrow diagonal bands on slope behind fovea. Femora dark red brown with cover of black feathery hairs; white areas formed by large white feathery hairs. White areas: coxae distodorsally; retrolaterally on femora I–IV, basally on femora III and IV; a spot prodistally on patellae III and IV. Tibiae brown, metatarsi I and II and tarsi I–IV orange; abdomen dorsally dark red brown with pair of white spots on anterior face, on anterior 1/6, at anterior third (and on other material a small pair at 2/3); laterally but not on flanks, a pair of white spots at anterior third, another pair of ovoid patches at three-quarters length; white spot terminally. Venter, coxae, sternum, all scutes red brown, flanks black. Carapace: posteriorly almost vertical, concave; fovea set well anterior to slope. Line of anteromedial setae and 10–15 around and in eye group. Margins smooth. Submarginal zone pustulose. Eyes: all small, similar in size. Chelicerae: fang setae small; dentition: 2R, 3P, smallest in middle. Sternum margin grooved with slight intercoxal triangles covered with long black hairs. Legs: femur IV and, to lesser extent, III with strong predistal constriction. Scopula on metatarsi and tarsi I and II. RCH absent. Spines: strong except on tibiae and metatarsi I, II. I: fe p1d3; ti v2.2; me v2.2. II: fe p1d3; ti v1.1; me v2.2. III: fe p2d3r2; ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r1; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d1; ti p2d1; cymbium p2 basally. Palp: tibia short with deep diagonal trough ventrally, cluster of five long bristles along retrolateral edge of trough; cymbium slender, with large glabrous area where paracymbial spine is absent; two long spines on probasal edge, and one small subdistal also prolaterally; bulb large with small subtegular indent, remaining broad and straight to very short dark embolus. Spermatic duct passes prolaterally and folds three times on ventral face. Embolus tip constricts pre-apically to short narrow darkly sclerotised conical spike with slight shallow transverse ribbing. Abdomen: dorsal scute extends for 0.9 of length, covered with thick black hairs; ventrally, genital scute strong with short collar ventrally; ventral scute *ca.* 1.5 times longer than wide, sides convex, posteriorly indented and narrowly separated from small coniform tracheal scute with numerous papillae in interspace between adjacent scute.

Allotype Female QM S79928

Carapace 3.28 long, 2.42 wide. Abdomen 3.08 long, 2.33 wide. Total, 6.8.

Colour: carapace dark brown with broken submarginal bands of white hair; legs brown with patches of white hairs on prolateral and retrolateral femora; abdomen dorsally black with paired patches of white hairs on anterior "shoulders", three large pairs on dorsolateral edges, with one large patch above spinnerets, and three smaller pairs medially in front of that; venter brown. Chelicerae: fang shield low but distinct with irregular line of *ca*. 15 long black sinuous and externally dentate hairs overlying base of fang. Legs: coxae I–IV dorsally convex; femora III, IV strongly constricted distally. Spines: none on pedal patellae; very weak on tibiae I, II; femoral spines strong. I, II: fe p1d3; ti v2.2.0; v2.2.0. III: fe p2d3r1; ti p2r2v2.2.2; me p3r3v2.2.3. IV: fe p2d2r1; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d1; ti p2d1; ta p2r1v2w. Abdomen: dorsally with uniform cover of dark feathery hairs. Scutes: dorsal small, triangular, slightly on anterior face and only for 0.3 of length; no ventral; tracheal scute small with broad ridge; genital scute like male. Epigyne: small crescentic C-shaped (left) ridge externally; small spermathecal head without accessory lobes.

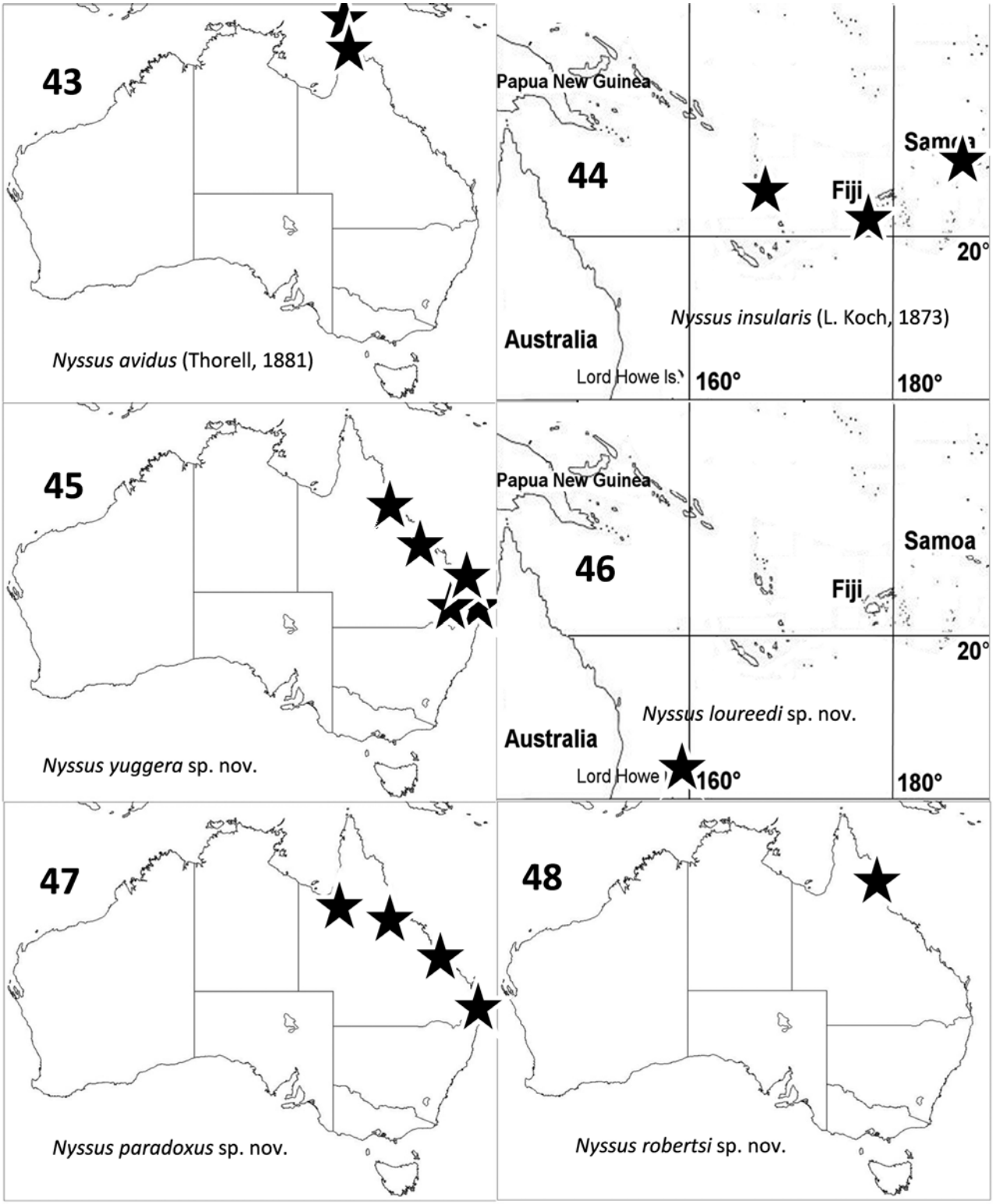
Distribution and Habitat. Known from open eucalypt forests from Rockhampton to Lake Broadwater and Taroom, mid-eastern Queensland and in northern New South Wales.

Remarks. The setal line on the male palpal tibia is in a similar position and direction to the spines on the tibial apophysis of *N. paradoxus* sp. nov.

***Nyssus jonraveni* sp. nov.**
(Fig. 81f–h. Map 42)

Material. **South Australia**: holotype ♂, Renmark, 32 km N, 33°53'S, 140°44'E, mallee, pitfall, 9–22 Nov 1995, A. Lambie, K. Pullen, QM S32120. Paratypes: **South Australia**: 1♂, as for holotype, QM S39575; 1♂, 3.7 km NE

Poogingoric, 36°24'34"S, 140°51'42"E, pitfall, 5–8 Dec 1995, Box Bulloak Survey, BBG02601, SAM NN8086. **Queensland**: 1♂, Lords Table, SE slopes, 22°40'S, 148°01'E, vine forest, malaise trap, 9 Jan–4 Mar 2006, C.J. Burwell, QM S80061.



MAPS 43–48. Records of Australian and Pacific species of *Nyssus* Walckenaer, 1805 .

Diagnosis. Males differ from those of *N. pseudomaculatus* sp. nov. in the much longer twisted pre-embolic tip of bulb (Fig. 81g), smaller ventral scute, and orange and black-banded femora. Female unknown.

Etymology. The species epithet is in honour of my son, Jonathan Raven.

Description holotype male QM S32120

Carapace 3.44 long, 2.48 wide. Abdomen 3.36 long, 2.24 wide. Total length 6.7.

Colour: carapace dark red brown with areas of feathery hairs: a narrow broken marginal band, small patches on interstrial ridge, two diagonal bars radially down posterior slope; a broader band on lateral caput; abdomen with dorsal scute for three-quarters of length with several white areas: a pair on anterior face; long ovoid pair in anterior quarter; medial and lateral pairs near half length; two pairs of smaller spots at two-thirds length, dumbbell pair laterally at three-quarter length, terminal spot; overall with four distinct pairs of white spots; coxae orange with black edges, femora and patellae orange and boldly marked with large irregular black areas; tibiae and metatarsi dark brown, tarsi pallid; ventrally, coxae and sternum dark brown, scutes dark brown with black flanks. Carapace cuticle and margins smooth; black feathery hairs absent; almost glabrous except for white hairs; fovea short, set forward of slope. Chelicerae: without enlarged fang setae; dentition 2R, 3P. Sternum smooth with light cover of black bristles. Legs: trochanter IV with wide shallow (*ca*. 4 times wider than deep) notch. Few white feathery hairs on lateral femora; femur IV with strong predistal constriction, weaker on III. Scopula on metatarsi (distal) and tarsi. RCH absent. Spines: strong on III and IV, weaker on I and II. I: fe p1d3; ti v1.2; me v2.2. II: fe p1d3; ti v1.1w; me v2.2. III: fe p2d3r2; ti p2r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r1; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; ti p1. Palp: tibia with broad, open excavation ventrally, not extending retrodorsally; cymbium slender, paracymbial spine absent; bulb constricts quickly from base to broadly spiralled short neck with long straight screw-tip embolus. Spermatic duct folds very strongly. Abdomen: petiolar collar absent, ventral scute short, almost square, with broad anterior notch; tracheal scute ovoid with broad central ridge; no black feathery hairs on scutes.

Distribution and Habitat. Known only from mallee at Renmark and south at Poogingoric, South Australia, and Lords Table Plateau, northern Queensland.

Nyssus avidus group

Diagnosis. Male Palp: tibial apophysis absent; paracymbial spine well developed (*N. avidus*) or vestigial to absent (*N. yuggera* and *N. loureedi*); embolus simple tight corkscrew. Females with small to medium-sized pair of CO leading to long slender ducts; males with full ventral and dorsal scutes. Carapace black to dark brown with radial lines of white hairs; males with large dorsal scute and usually ventral scute; abdomen dorsally black with transverse pallid bars.

Included species: *Anchognatha avida* Thorell, 1881, *Supunna insularis* L. Koch, 1873, *Nyssus yuggera* sp. nov. and *N. loureedi* sp. nov.

Nyssus avidus (Thorell, 1881), new combination

(Figs 79d, 82a–d. Map 43)

Anchognatha avida Thorell, 1881: 229.

Material. Queensland: holotype ♀, Somerset, Cape York, L.M. D'Albertis, MCG. **Non-type material. Queensland**: 2♂, Thursday I, Torres Strait, 10°48'S, 142°13'E, 25 Jan 1992, QM S32159, S46008; 1♀, same data but, 30 Mar–15 Jun 1996, A. von Berkey, QM S53444; 1♂ 1♀, Steve Irwin Wildlife Reserve, Coolabah camp, 12°32'09"S, 142°12'43"E, vehicle vibration, 13–14 Sept 2013, R. Raven, B. Baehr, QM S97458; 1♂, same data but 13 Sep 2013, B. Baehr, R. Raven, QM S97459.

Diagnosis. Unlike *N. albopunctatus* and similar species, males and females have the radial pattern of hairs on the carapace (Fig. 79d) and differ from males of *N. yuggera* sp. nov. in the strong paracymbial spine (Fig. 82b) and from females in the large spermathecal head (Fig. 82d); females further differ from those of *N. albopunctatus* in the much smaller CO (Fig. 82c).

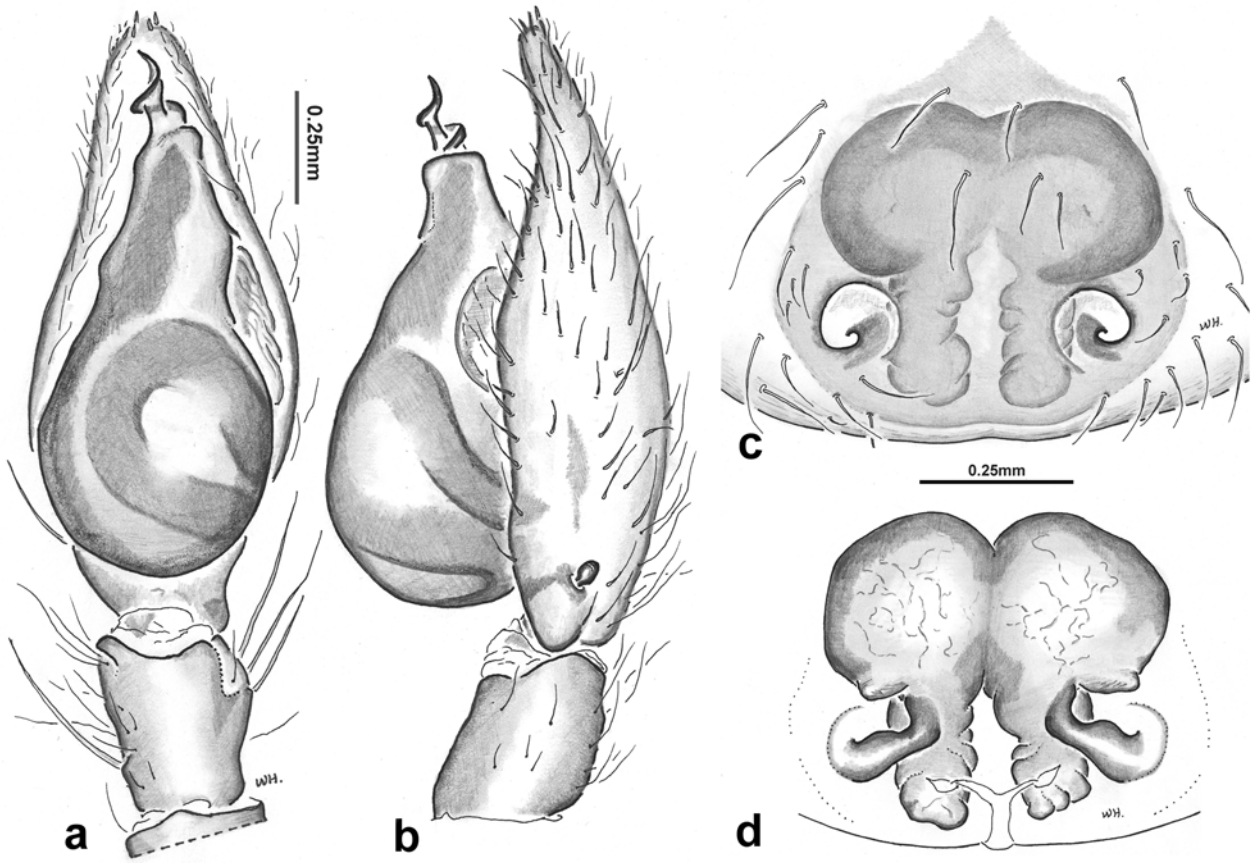


FIGURE 82. *Nyssus avidus* (Thorell, 1881), male QM S32159: a, b, palpal tibia, bulb and cymbium (mirrored), ventral (a) and retrolateral (b) views; female, QM S53444, c, d: epigyne, external (c), and internal (d).

Description Male QM S32159

Carapace 3.36 long, 2.67 wide. Abdomen 3.68 long, 2.32 wide. Total length 7.1.

Colour: carapace dark brown with narrow bands of white feathery hairs along caput edge, and irregularly along interstrial ridges; abdomen dorsally with dark red brown scute covered with two paired large spots of white hair anteriorly discernible, with black feathery hairs to about two-thirds length, then wide lunate zone of yellow hairs with terminal narrow lobe and flanked by dark bands. Legs with brown-orange coxae, otherwise dark red brown; ventral scute and genital scute red brown; flanks gray brown. Patches of white hair laterally on abdomen, two per side and one pair anteriorly. Eyes: of front row much smaller than of back; PME within 0.3 of diameter of PLE and *ca*. one diameter apart. Legs: trochanter IV clearly notched; I–III with very shallow notches. Femora III and IV with distinct predistal constriction and IV also with raised area before basal spine. Spines: I: fe p1d1 basal pa 0; ti v2.2 all weak; me v2.2. II: fe p1d3r1; pa 0; ti v1.1w; me v2.2. III: fe p1d3r2; pa r1 strong; ti p2r2v2.2.2; me p3r2v2.2.3. IV: fe p1d3r1; pa r1; strong ti p2d1r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2r1; pa p1; ti p2; cymbium p2. Abdomen: dorsal scute for anterior two-thirds; genital scute with rounded post epigastric sclerites, large rhomboidal ventral scute separated from teat-like tracheal scute. Palp: basal haematodocha expanded; femur distally incrassate; cymbium with small distinct thumb-like paracymbial spine; bulb large, constricting to narrow neck with distal flared collar before twisted tapering embolus; cymbial apex pallid with 3–4 short thick setae.

Female QM S53444

Carapace 3.08 long, 2.28 wide. Abdomen 3.83 long, 2.57 wide. Totally, 7.7.

Colour: carapace red brown and slightly rugose with fine silver hairs, mostly rubbed, in striae; legs orange brown; abdomen light brown with small triangular scute just extending over surface. Eyes: all similar in size. Chelicerae: 3P, 2R; low fang mound with 5–6 short thick serrate bristles. Spines: all strong save on tibiae I and II; basal spine dorsally on femora I–IV very long. I: fe p1d3r1; pa 0; ti v2.2.0; me v2.2. II: fe p1d3r1; pa 0; ti v.1.1; me v2.2. III & IV: fe p2d3r2; pa r1; ti p2r2v2.2.2; me p3r3v2.1.1.3. Palp: p1d1; pa p1w; ti p2d2; ta p1d1r1v2 distal. Preening brush on retroventral metatarsus III and proventral IV. Abdomen: post-epigastric sclerites strongly U-

shaped; tracheal scute small, conical. Epigyne: externally with two small U-shaped ridges; internally, with long simple lobes leading to enlarged head of spermatheca.

Distribution and Habitat. Known from tropical forest on Thursday Island, Torres Strait, and adjacent mainland at Somerset, and open eucalypt forest at the Steve Irwin Wildlife Reserve, both in Cape York, northeastern Queensland.

Remarks. The holotype is not in good condition because the moult was incomplete; the tips of chelicerae are still present. The female described here differs from the holotype in the conical form of the tracheal scute, which is a narrow transverse ridge.

Anchognatha was originally included by Thorell (1881) in the Clubionidae, where it was later transferred to the Sparassidae. While working through sparassid genera, David Hirst, then of the South Australian Museum, alerted me to the apparent corinnid affinities.

Nyssus insularis (L. Koch, 1873), new combination

(Figs 83a–d, 87e, f. Map 44)

Agroeca insularis L. Koch, 1873: 437.
Supunna insularis: Simon, 1897: 168.

Material. Fiji: holotype, subadult ♀, faded, ZMH.

Non-type Material. **Solomon Islands**: ♀, Guadalcanal, Mt Austen, 17 Feb 1964, P. Greenslade, QM S97460.

Diagnosis. The female differs from those of *N. avidus* in the spermathecae having a very large head and the distal stalk being very short (Fig. 87f). Male unknown.

Description Female QM S97460

Carapace 3.35 long, 2.15 wide. Abdomen 2.85 long, 1.65 wide. Total length 6.5.

Colour: carapace red brown with *ca*. 40 patches of small white feathery hairs: broken anteromedial line, 2–3 pairs on each stria, ridge patches lateral of eyes and behind and between AME and PLE. Coxae dorsally pallid with brown flecking densest on IV. Femora–metatarsi brown, tibiae and metatarsi I and II paler than III and IV; distal patellae and tibiae IV with irregular ovoid yellow area pro- and retrolaterally. Tarsi yellowish; abdomen dorsally brown with small trianguloid scute in anterior fifth; two spots of white hair lateral of scute; four narrow bands of white hair behind scute; anterior most broadest, broken medially; next two shorter joined lunate patches, then narrow band, followed by wide long band of dense white hair, and two pallid spots terminally; laterally a large trianguloid white patch beside scute, narrow band medially, and at *ca.* 0.8 of length, brown, centrally yellowish with red brown sternum; abdomen with lateral bands reaching to pallid brown medial rectangle. Metatarsi III and IV pallid dorsally in distal half; white feathery hairs laterally and in distal ring on femora. Carapace finely pustulose with uniform light cover of fine black hairs as well as white patches; fovea long, above slope; margin smooth. Eyes: all of similar size but PME and AME slightly the larger; rows of similar width; front recurved, back procurved with front edge of PME cut centres of PLE. Chelicerae: fang setae not enlarged but in cluster; fang moderately long with short groove; dentition: 2R, 3P. Maxillae: with groove along inner edge; labium subquadrate. Sternum cordate, lightly hirsute, without anteromedial or lateral notches; no intercoxal extensions. Legs: coxal bases without strong basal projections, trochanters IV with short deep notch, others very weakly notched. Scopula weak but distinct on metatarsi I and II for distal two-thirds; stronger on tarsi I and II, absent elsewhere; femur IV and to lesser extent III with slight distal constriction. Pair of preening combs on distal ventral metatarsi III and IV. Claw tufts short, dense, as high as claws. RCH small, high. Spines: all strong. I: fe pv1p1d3r1; ti v1.2.2; me v2.2. II: fe p2d3r1; ti v2.2; me v2.2. III: fe p2d3r2; ti p2d1r2v2.2.2; me p3r3v2.2.2.3. IV: fe p2d3r1; ti p2d1r2v1.1.1; me p3r3v2.2.3. Palp: fe p1d2; pa p1d2w; ti p2d1; ta p2 basal pair. Palpal tarsus predistally incrassate. Abdomen: genital scute with paragenital brackets; petiolar collar absent. Tracheal spiracle marked by small papule in semicircular scute. Distinct triangular hirsute ‘colular’ lobe present. Spinnerets all short. Epigyne: a broad shield with wide median septum flanked by broad open conical pits.

Distribution. Known only from Fiji and the Solomon Islands.

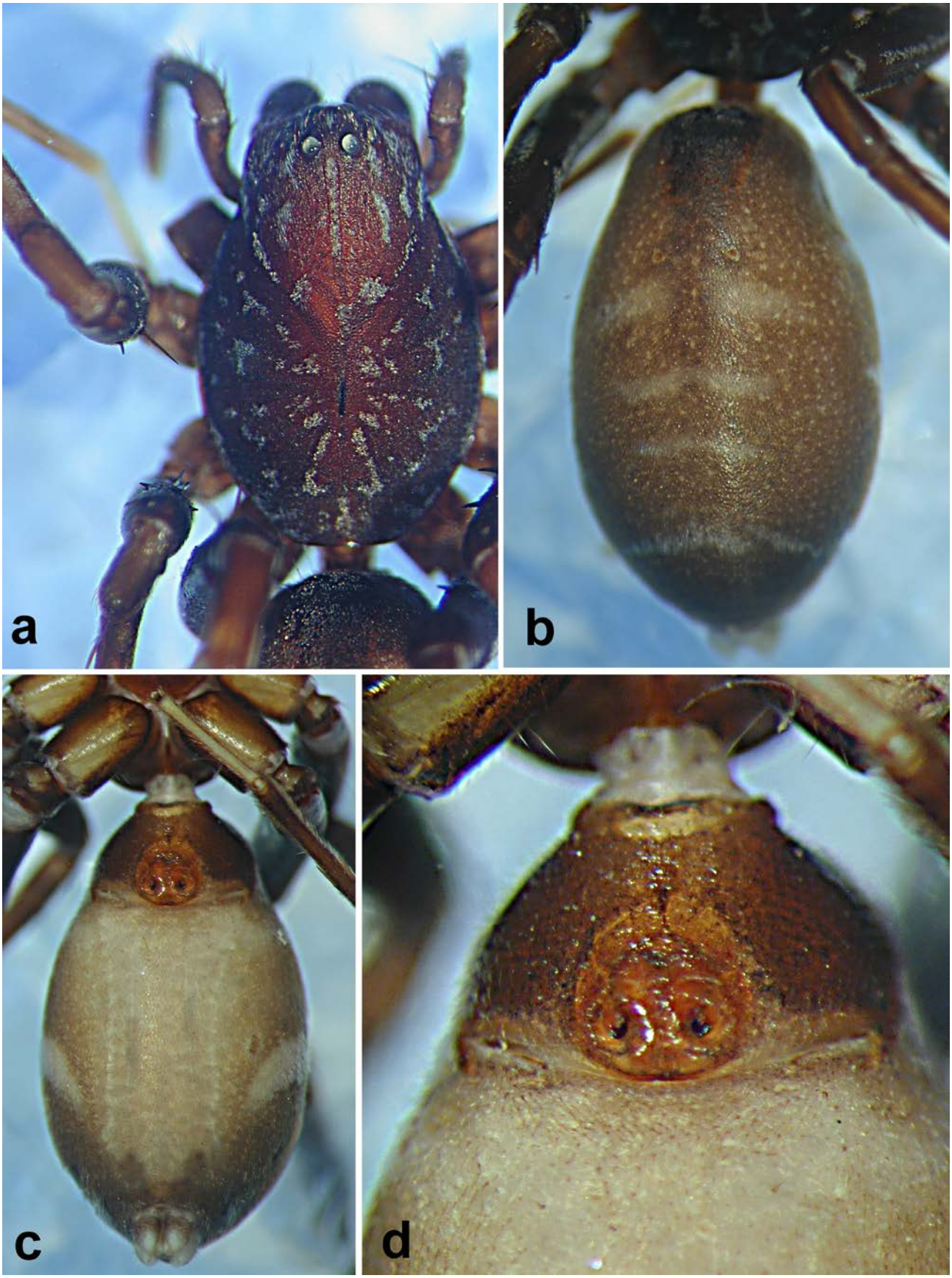


FIGURE 83. *Nyssus insularis* (L. Koch, 1871), female QM S97460: a, carapace, dorsal view; b, abdomen, dorsal view and ventral view (c); d, epigastric region, ventral view.

Remarks. The holotype of *Agroeca insularis* is a pallid subadult *Nyssus* from Fiji. After examining all material placed in *Supunna* in the Australian museums and in the Bernice P. Bishop Museum, Honululu, no close match for the species could be found; nor has material of it been taken in collections from Fiji or nearby island, including Samoa. Material described here was the closest match to the type both in geography and morphology, and since the type is a juvenile it is very unlikely that a better match will be possible. The material described here hearkens to the faded pattern on the holotype. For the sake of stability, the material described here from the Solomon Islands is taken to be conspecific with the type.

Nyssus yuggera sp. nov.
(Figs 1c, 84a–e, 85a–d. Map 45)

Material. **Queensland**: holotype ♂, Colvin Scrub, Canungra, 28°04'S, 153°07'E, 20 Feb 1977, G. Monteith, QM S29578. Paratypes: **Queensland**: (allotype) 1♀, same data, QM S39557; 1♂, Bahrs Scrub, Beenleigh, 27°45'S, 153°10'E, rainforest, intercept flight trap, 21 Jan 1992–9 Mar 1992, D. Cook, QM S25177; 1♂, Bally Knob, summit, 17°39'S, 145°29'E, open forest, pitfall, 6 Dec 1998–6 Feb 1999, G. Monteith, D. Cook, QM S57171; 1♀, Bellthorpe, 26°50'S, 152°41'E, rainforest, pitfall, 9 Mar–15 May 1997, G. Monteith, QM S37678; 1♂, same data but, 18 Dec 1996–20 Jan 1997, QM S39565; 1♂ 1♀, same data but, 20 Jan–9 Mar 1997, G. Monteith, QM S38059; 1♂, Casey Ck, via Imbil, 26°28'S, 152°41'E, rainforest, pitfall, 31 Dec 1974–27 Mar 1975, G. & S. Monteith, QM S39564; 1♂, Cold Ck, via Imbil, 26°28'S, 152°41'E, rainforest, pitfall, 31 Dec 1974–27 Mar 1975, G. & S. Monteith, QM S29516; 1♂, Dagun Slip, 16 km N of Imbil, 26°19'S, 152°39'E, complex notophyll vine forest, 15 Feb 1999, D. Wells, QM S63863. Ewan Maddock Dam, 26°48'S, 152°59'E, closed forest, pitfall, M. Glover: 1♂, 20 Nov 1993–22 Mar 1994, M. Glover, QM S39556; 2♀, 22 Feb–23 Jun 1993, QM S22101; QM S22102; 1♂, same data but, 21 Nov 1992–22 Feb 1993, QM S32296; 1♂, 4♀, same data but, 20 Nov 1993–22 Mar 1994, M. Glover, QM S39560, QM S39563, QM S32643, QM S28510, QM S39562; 1♀, same data but, 30 Jan 1993–3 May 1993, QM S22113. 1♀, Karawatha Forest (BCC6), 27°37'S, 153°05'E, dry eucalypt forest, pitfall, 31 Mar–29 Apr 2004, QMP, QM S54965; 1♂, Little Yabba Ck, 26°37'S, 152°41'E, rainforest, pitfall, 29 Dec 1974–27 Mar 1975, G. & S. Monteith, QM S40716; 1♂, Mapleton Falls NP, 26°38'S 152°51'E, rainforest, pitfall, 8 Jan 1992–3 Mar 1992, D. Cook, QM S43393; 1♀, same data but, 3 Mar–17 Apr 1992, D. Cook, QM S39561; 1♂, same data but, intercept flight trap, 8 Jan–3 Mar 1992, D. Cook, QM S25188; 1♀, Millstream CP, 17°32'S, 145°29'E, open forest, pitfall, 6 Dec 1998–4 Feb 1999, G. Monteith, D. Cook, QM S57635; 2♀, Mt Deongwar, 27°13'S, 152°17'E, 18 Nov 2000, R. Raven, QM S45740; 1♂, Ravenshoe, 7 km NE, 17°33'S, 145°31'E, road verge, pitfall, 6 Dec 1998–5 Feb 1999, G. Monteith, D. Cook, QM S57644; 1♂, Taroom district, Boggomoss #12, Nathan Gorge, 25°27'S, 150°08'E, baited flight trap, 13 Nov 1996- Jan 97, G. Monteith, D. Cook, QM S36262; 1♀, Wetheron, 3 km SW, 25°34'S, 151°41'E, semi-evergreen vine thicket, flight intercept trap, 27Jan–7 Jun 1999, G. Monteith, G. Thompson, QM S79285; 1♂, Tully Falls, 2 km SW, 17°47'S, 145°32'E, open forest, pitfall, 5 Dec 1998–4 Feb 1999, G. Monteith, D. Cook, QM S57186; 1♂, Webster Road, Evelyn, 17°26'S, 145°27'E, open forest, pitfall, 30 Nov 1997–5 Feb 1998, G. Monteith, D. Cook, QM S54532. **New South Wales**: 1♂, Broken Head (high), via Byron Bay, 28°43'S, 153°37'E, rainforest, pitfall, 6 Mar–13 Jun 1976, G. & S. Monteith, QM S16747; 1♂, Rotary Pk, Lismore, 28°49'S, 153°16'E, rainforest, pitfall, 26 Dec 1974–23 Mar 1975, G. & S. Monteith, QM S39558; 1♀, Victoria Pk, via Alstonville, 28°53'S, 153°23'E, rainforest, pitfall, 23 Mar–3 Aug 1975, G. & S. Monteith, QM S39559.

Diagnosis. Males differ from those of all other species by the cork-screw embolus tip (Fig. 85a), as in *Leichhardteus*, from which they differ in the presence of a ventral scute (Fig. 84e). Males further differ from those of *N. avidus* and *N. luteofinis* sp. nov. in the absence of a spine retrolaterally on patellae III and IV and of enlarged setae on the apical cymbium. Females are easily recognised externally by the slender form of the spermathecal head, in combination with the large circular copulatory fossae (Fig. 85c, d). Males with minute paracymbial spine (Fig. 85b), with dorsal and ventral scute, palpal femur with slight distal bulge, chelicerae with basal conical process near fang; palpal femur with subtle distal thickening.

Etymology. The species epithet is the name of the one of aboriginal tribes of south-eastern Queensland, where the species is widespread.

Description holotype male QM S29578

Carapace 3.04 long, 2.32 wide. Abdomen 3.04 long, 2.00 wide. Total length, 6.1.

FIGURE 84. *Nyssus yuggera* sp. nov.: a, habitus female, photo: J. Wright, QM; holotype male, QM S45740: b, habitus; c, venter; d, palpal tibia, bulb and cymbium, ventral view; e, carapace, lateral view.

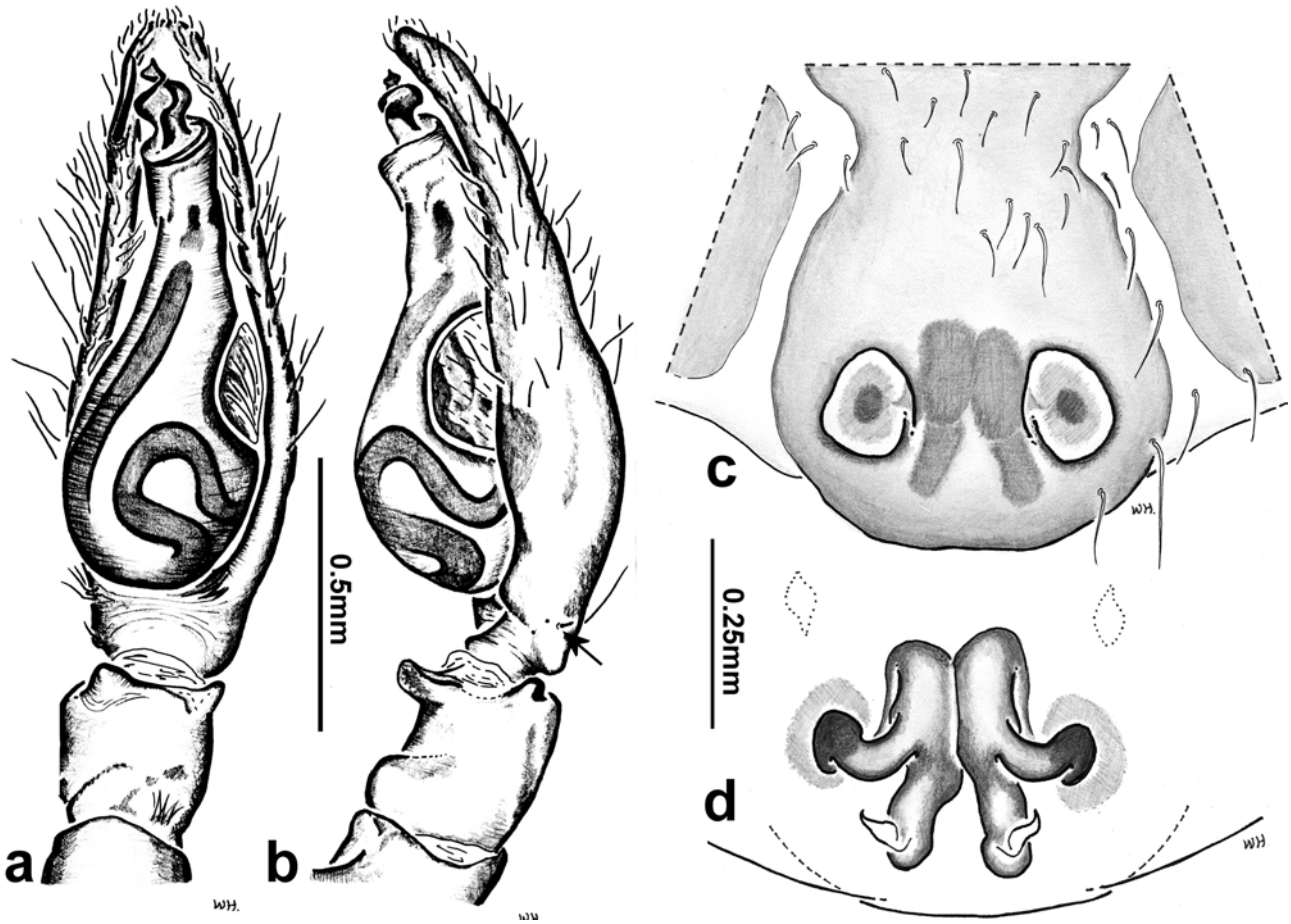


FIGURE 85. *Nyssus yuggera* sp. nov., holotype male, QM S29578; a, b, palpal tibia, bulb and cymbium, ventral view (a), and retrolateral view, showing minute paracymbial spine (arrow) (b); c, d, allotype female, QM S91624: epigyne, external (c), and internal (d).

Colour: carapace, sternum, coxae and dorsal abdomen dark red brown, legs paler. Carapace: uniformly pustulose; fovea short, just in front of steep posterior slope. Uniform cover of fine hair. Margin smooth. Eyes: all of similar size, back row wider, slightly procurved. Chelicerae: small lobe at outer base of fang; dentition: 2R, 2P. Sternum cordate, pustulose. Legs: almost glabrous; RCH small, dorsal; femoral constriction more distinct on III than IV. Spines: strong. I: fe p1d2; ti v2.2.2; me v2.2. II: fe p1d2; ti v2.2.2; me v2.2. III: fe p2d3r2; ti p2r2v2.2.2; me p2r3v2.2.3. IV: fe d3; ti p1r1 (both distal) v1.2; me p3r3v1.3. Palp: 0. Abdomen: full dorsal scute extending laterally; genital scute strong, post-epigastric sclerites short, rounded; ventral scute narrow, laterally convex, distally irregularly separated from broad transverse tracheal scute produced in central concealed ridge. Palp: femur with slight distal bulge; tibia with deep saddle ventrally; cymbium with minute paracymbial spine; bulb tapers gradually to narrow pre-embolic ridge, embolus screw-like.

Allotype female QM S39557, as for male except:

Carapace 3.13 long, 2.31 wide. Abdomen 3.44 long, 2.44 wide. Total length, 7.56.

Colour: carapace dark red brown with narrow lines of white hair, long from PME to fovea, on each side, three lines along lateral strial ridges stopping well back from fovea and fourth in long narrow but wider band from posterior corners up to fovea, and light pile of pale hairs on lateral caput and along carapace margin; abdomen dorsally with small dark brown anterior scute, generally dark brown with medial pallid zone like a wood shaving, narrow apically, narrowing, then widening again; two pairs of dark brown sigilla just anterior to centre; ventrally brown with pair of long narrow pallid bands at edge of central light brown quadrangle with two curving paramedial pallid lines; genital scute dark brown with paler epigyne and pallid unsclerotised epigynal lateral edges. Chelicerae: with several thick, black, curved fang setae. Legs: femora dark brown with pale spine bases and paler patella to tarsi. Legs and spines as ♂ but tibia IV much more hirsute than III and also one dorsal spine. Abdomen: dorsal

scute ovoid, small, extending down front face and along dorsal only for *ca*. 0.1 of length. Genital scute with paragenital brackets laterally, ventral scute weak, tracheal scute almost conical with *ca*. eight thick black setae. Colulus triangular, hirsute. Spinnerets: ALS and PLS similar in size. Three large cylindrical gland spigots on PMS and two on PLS evident; PMS short, domed; others large, domed. Epigyne: externally two procurved ridges laterally with sausage-shaped ducts internally visible; permathecal head not enlarged.

Distribution and Habitat. Known from rainforest, open forest and heathland areas from Taroom, west of Gladstone, through the Conondale Range and lowland areas to the east, in south-eastern Queensland to Byron Bay and Lismore, north-eastern New South Wales.

Biogeography. As with *N. loureedi* sp. nov., the affinities of *N. yuggera* sp. nov. are challenging. The widespread distribution of *N. yuggera* sp. nov. is unusual, save for *N. coloripes* and *N. albopunctatus*, in the Australian Castianeirinae. Clearly, *N. loureedi* sp. nov. and *N. yuggera* sp. nov. are sister groups and yet the sexual differences are clear. The two species are geographically well separated, with the former known only from Lord Howe Island, thus indicating that the island has been above sea long enough for these species to diverge.

***Nyssus loureedi* sp. nov.**
(Figs 86a–e, 87a–d. Map 46)

Material. **New South Wales: Lord Howe Island**: holotype ♂, Valley of the Shadows, bird colony, 31°31'50"S, 159°04'36"E, 8–15 Dec 2000, H. Gibb, P. Harris, T. Moulds, AM KS82436. Paratypes: **Lord Howe Island**: 1♀ (allotype), same data as holotype, AM KS82431; 1♂, Stephens Reserve, New Settlement, 31°31'33"S, 159°03'55"E, 4–14 Dec 2000, H. Gibb, P. Harris, T. Moulds, AM KS76269; 1♀, The Clear Place, 30m, sieved litter, G. Monteith, 22 Nov 1979, QM S43770.

Diagnosis. Males differ from those of *N. yuggera* sp. nov. by the short dorsal abdominal scute, narrower embolus tip (Fig. 87c, d) and the presence of spines on the palpal femur to tibia; females differ from those of *N. yuggera* sp. nov. by the smaller spiralled copulatory fossae and the enlarged head of the spermathecae (Fig. 87a, b).

Etymology. The species epithet is in honour of the late Lou Reed (March 2, 1942–27 October 2013), American musician, singer and songwriter.

Description Holotype male AM KS82436

Carapace 3.25 long, 2.50 wide. Abdomen 3.13 long, 2.38 wide. Total length 6.5.

Carapace: glabrous. Cheliceral fang shield only with long setae. Sternum and femora pustulose. Legs: no feathery hairs. Leg IV slightly thicker and longer than I–II. Spines: strong, none on patellae I–IV; I: fe p1d3r1. II: fe p1d3r1. III: me p2r3v2.2.dw4. IV: fe p1–2d3r1; p2r2v2.2.2; me p1r1v2.2.dw4. Palp: fe p1d2; pa p1; ti p2. Abdomen: dorsal scute for about three-quarters of length. Tracheal scute conical on broad sclerotised mound. Palp: pre-distal edge of dorsal tibia with rounded ridge demarcating distal groove; paracymbial spine absent. Embolus with long low ridge from basal on bulb with narrow curled embolus.

Allotype Female AM KS82431

Carapace 4.81 long, 3.38 wide. Abdomen 5.63 long, 3.94 wide. Total length 10.4.

Colour: carapace, legs and dorsal scute dark red brown; abdomen dark brown with white foliate pattern centrally; dorsal scute posteriorly indented, extends only for *ca*. 0.1 of dorsal length. Carapace: anterior lateral corner bulges out over cheliceral boss. Carapace, sternum and coxae rugose. Chelicerae: slightly porrect; fangs slightly diagonal; dentition: 2R, 3P. Legs: precoxal sclerites present; RCH distinct. Femora III and IV with distinct distal constriction. Femora I–IV similar in size. Scopula on metatarsi and tarsi I–III. No feathery hairs evident. Spines: I and II: fe p1d3r1; pa 0; ti v2.2.2 (all short); me v2.2. III: fe p2d3r2; pa 0; ti v2.2.2 (all strong); me v2.2. IV: fe p2d3r1; pa 0; p2d1r2v2.2.2; me p2r2v2.2 + distal whorl of 4. Palp: fe p1d2; pa p1 d1(apical); pv1 long p1d2; ta p2r1 plus group of 5–7 spine-like bristles distally. Abdomen: tracheal scute a sclerotised ridge. Pedicel short. Spinnerets: two large spigots on PLS; triad on PMS. Epigyne: with paragenital brackets. Copulatory fossae small, spiralled and large spherical head of spermathecae externally evident.

Distribution. Known only from Lord Howe Island.

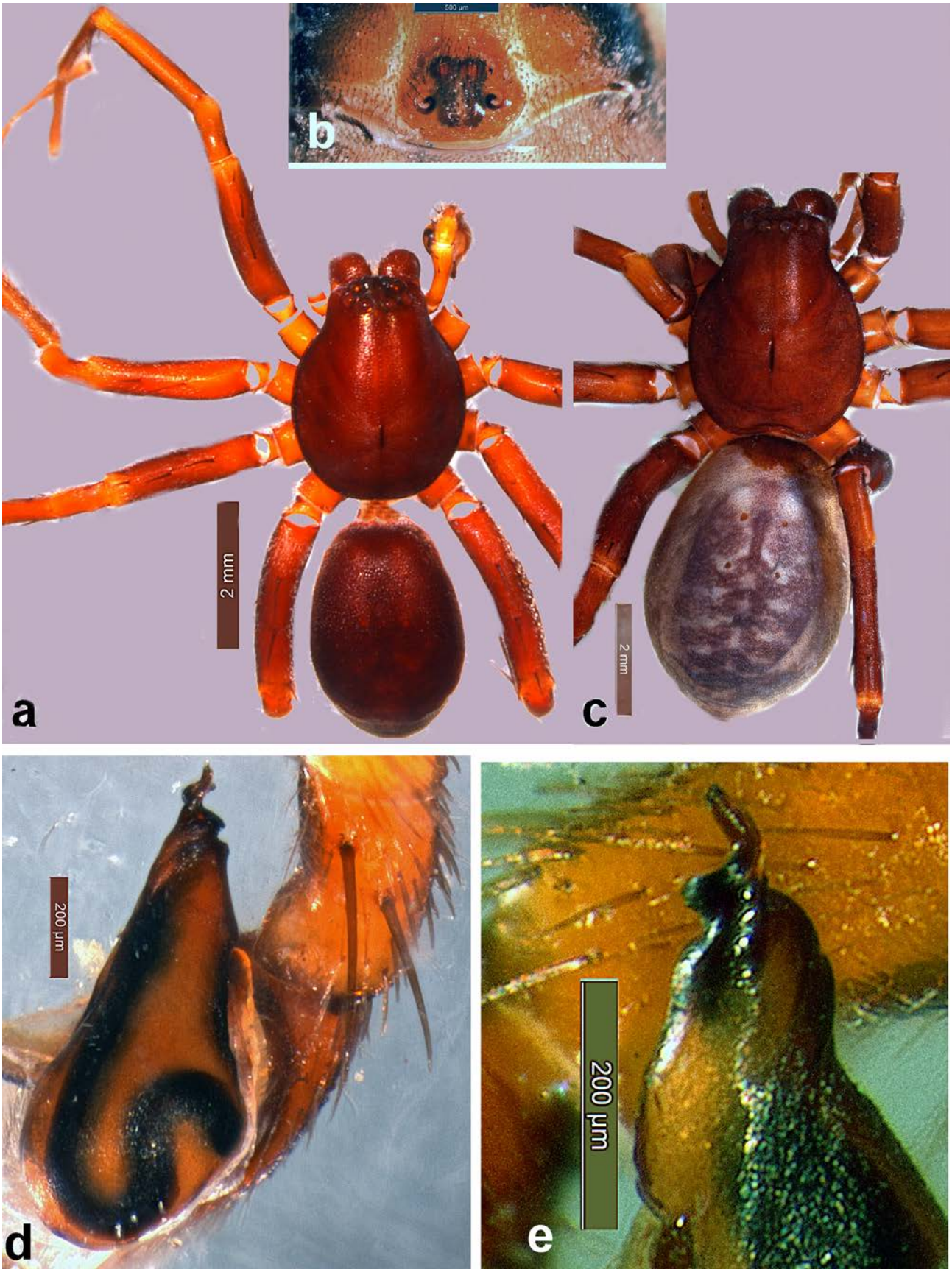


FIGURE 86. *Nyssus loureedi* sp. nov.: a, d, e, holotype male, AM KS82436, a, habitus, d, palpal tibia, bulb and cymbium, ventral view; e, embolus tip, retrolateral view; b, c, allotype female, AM KS82431: b, epigyne, external; c, habitus.

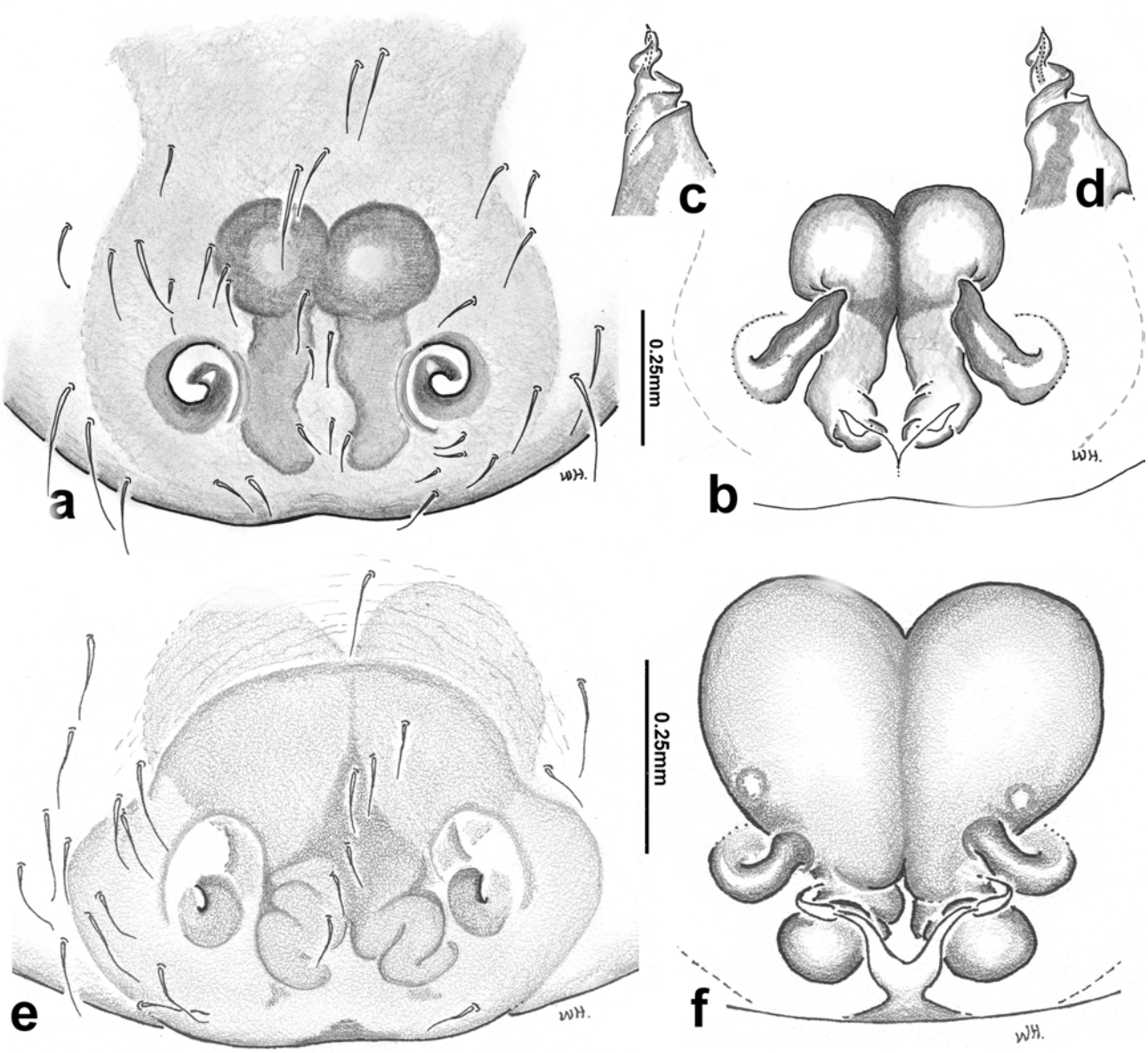


FIGURE 87. *Nyssus loureedi* sp. nov.: a, b, allotype female, AM KS82431, epigyne: a, external; b, internal; c, d, holotype male, AM KS82436, embolus tip, ventral (c) and retrolateral (d) views. e, f, *Nyssus insularis* (L. Koch, 1871), female QM S97460: epigyne, external (e), and internal (f).

Nyssus paradoxus group

Diagnosis. Tibial apophysis present on male palp (Fig. 88a–c), if only in the form of strong bristles (Fig. 90a); paracymbial spine strong; embolus a tip simple tight corkscrew. Females with large copulatory orifices separated by widely rounded V-shaped ridge, leading to a pair of longitudinal ducts on each side (Fig. 89a–e). All species have a black carapace with white submarginal band and black abdomen with 3–5 pairs of white spots dorsally and spots also laterally (Fig. 88d). Males with full ventral and dorsal scutes.

Included species. *Nyssus paradoxus* sp. nov., *N. robertsi* sp. nov. and *N. wendyae* sp. nov., *N. emu* sp. nov.

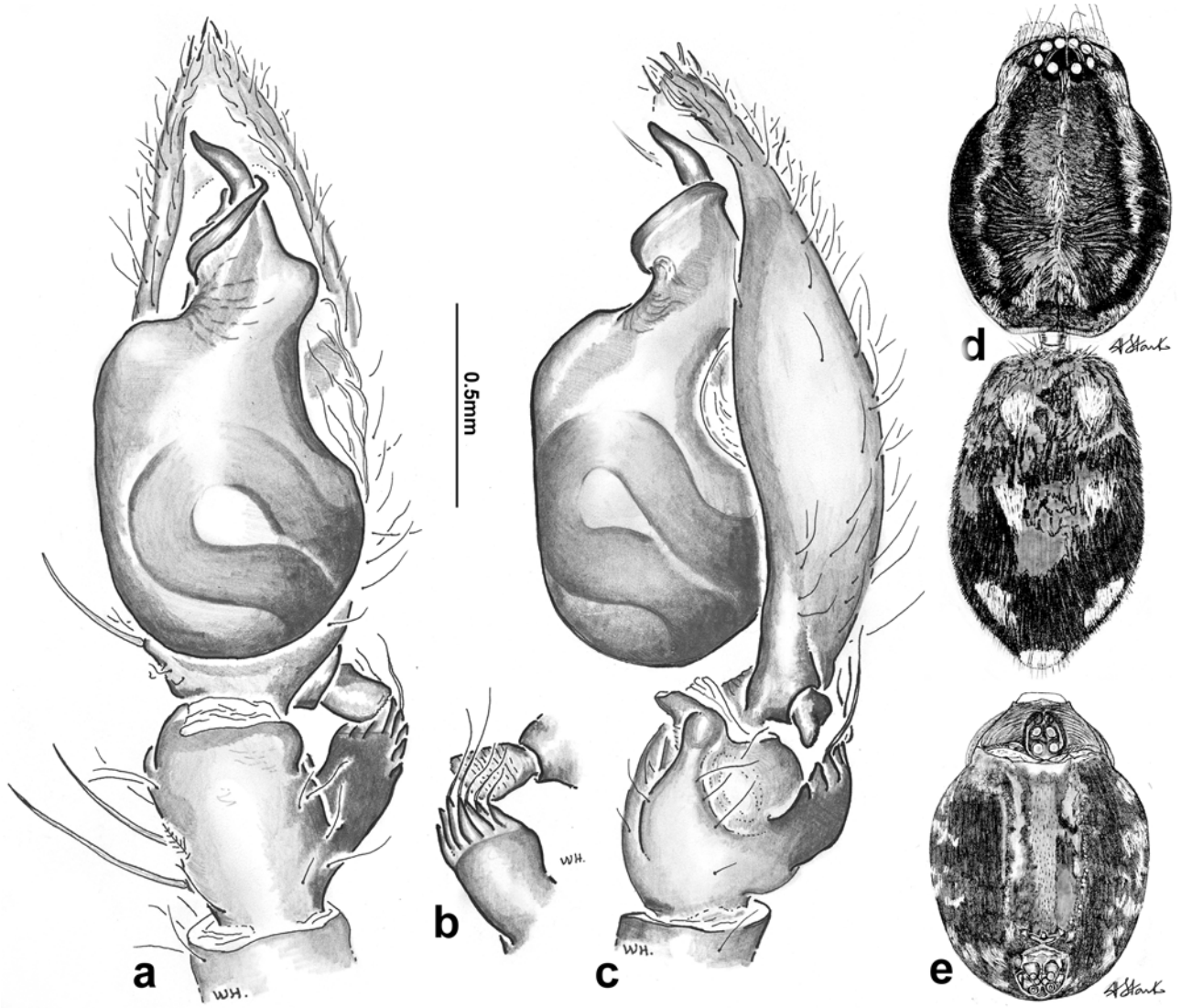


FIGURE 88. *Nyssus paradoxus* sp. nov.: a–c, holotype male, QM S44435, palpal tibia, bulb and cymbium, ventral view (a); paracymbial spine and tibial apophysis, dorsal (b) and retrolateral (c) views; d, e, female: habitus (d) and abdomen (e), ventral view.

***Nyssus paradoxus* sp. nov.**
(Figs 88a–e; 99a–c. Map 47)

Material. **Queensland**: holotype ♂, North Stradbroke Is., Dunwich, 27°35'S, 153°27'E, pitfall, 28 Oct–8 Dec 1997, N. Scott, QM S44435. Paratypes: **Queensland**: 1♀ (allotype), Cobbs Hill (Site 2), 26°02'S, 151°53'E, pitfall & intercept traps, 19 Dec 1992–Mar 1993, S. Hamlet, QM S27408; 1♂, same data as holotype, QM S39539; 1♂, same data as holotype, QM S44436; 1♂, Running Ck, near Innothot Springs (NQ28), 17°18'S, 145°18'E, woodland, pitfall, 25 Jul–30 Nov 1992, R. Raven, P. & E. Lawless, M. Shaw, QM S24297; 1♀, Eight Mile Ck (NQ 31/1), 18°41'S, 144°42'E, eucalypt woodland, pitfall, 6 Nov 1991–26 Jul 1992, P. Lawless, R. Raven, M. Shaw, QM S21852; 1♂, Gregory & Herveys Range Development Road crossing, 19°31'S, 145°44'E, open forest, pitfall, 17 Dec 2006–15 Feb 2007, G. Monteith, D. Cook, QM S76601; 1♂, Marsupial Ck, via Croydon, 18°16'S, 142°41'E, pitfall, Mar 96–Mar 97, J. Hasenpusch, QM S37673; 1♂, Mount Isa, 7 km E, 20°43'S, 139°34'E, woodland, pitfall, 7–11 Feb 2007, D. Cook, QM S76945; 1♀, Mount Tregaskis, 3 km NNE, 19°15'S, 145°29'E, open forest, pitfall, 17 Dec 2006–15 Feb 2007, G. Monteith, D. Cook, QM S76631; 1♂ 1♀, Normanton, 40 km SW at radio tower, 17°56'S, 140°54'E, open forest, pitfall, 4 Jul–12 Sep 2006, R. Raven, B. Baehr, A. Amey, QM S77201; 1♂, Proserpine, Airport Drive, site XY12, 20°29'S, 148°34'E, closed woodland, pitfall, 13 Feb–12 Mar

2008, R.J. Raven, QM S85392; 1♂, Rose Bay, Bowen (NQ 33), 20°00'S, 148°16'E, vine thicket, pitfall, 7 Nov 1991–27 Jul 1992, R. Raven, P. Lawless, M. Shaw, QM S24100; 1♀, S of Clarke R xing, 19°14'S, 145°28'E, open forest, pitfall, 27 Sep–17 Dec 2006, R. Raven, A. Amey, G. Monteith, D. Cook, QM S79094; 1♂, Three Ways, Wills Developmental Rd, just NW, 19°13'S, 140°20'E, open forest, pitfall, 2 Jul–11 Sep 2006, R. Raven, B. Baehr, A. Amey, QM S77182; 1♂, Toomba Station, S of Lolworth Ck bridge, 19°58'S, 145°36'E, open forest, pitfall, 15 Feb 2006–8 May 2007, R.J. Raven, QM S79197; 1♂, Tower at Perry Range Xing on rd, 19°20'S, 145°35'E, open forest, pitfall, 17 Dec 2006–13 Feb 2007, G. Monteith, D. Cook, QM S76743; 1♀, W of Myola Stn on ridge, 20°04'S, 145°28'E, Lancewood and Fig bushland, open forest, pitfall, 28 Sep–17 Dec 2006, R. Raven, A. Amey, B. Baehr, QM S79042; 1♂, same data but 17 Dec 2006–13 Feb 2007, R. Raven, B. Baehr, QM S79179.

Diagnosis. Males differ from all other Australian Castianeirinae in the strongly spinose RTA and opposed wing-like paracymbial spines (Fig. 88b); females differ from those of *N. robertsi* sp. nov. in that the median epigynal groove does not extend to the epigastric ridge (Fig. 89a, b).

Etymology. The species epithet conveys the paradox posed by the apomorphic character (RTA) which is plesiomorphically absent in the subfamily.

Description holotype male QM S44435

Carapace 3.84 long, 2.88 wide. Abdomen 4.16 long, 2.64 wide. Total length 8.1.

Colour: carapace dark red brown with patches of white feathery hairs along margins and paramedially; abdomen dorsally with three pairs of large white patches, most posterior apostrophe-shaped, and white spot on end of abdomen, mid-laterally in some specimens with large ovoid spot; legs dark brown with spots of white feathery hairs laterally on femora and patellae. Spines: I: fe p1d3; pa0; ti v2.2w; me v2.2.0. II: fe p1d3; pa 0; ti v1.1; me v2.2. III: fe p1d3r2; pa 0; ti p2r2v2.2.2; me p3r3v2.2.3 midlateral spine very long. IV: fe p1d2r1; pa 0; ti p2d1r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2; pa p1; ti p1; cymbium p2 basal. Legs: weak but distinct scopula on tarsi and distal half of metatarsi I and II. Palp: tibia with large RTA bearing at least four long tapering spines and, at rest, closely approaching large slightly scooped paracymbial spine; cymbium apically with pallid weak zone with 4–6 short thick bristles. Abdomen with dorsal scute for two-thirds length and partially down flanks; genital scute with short collar and distinct post-epigastric sclerites; ventral scute wide, extends back to large triangular tracheal scute but separate from it.

Allotype Female QM S27408

Carapace 4.08 long, 2.96 wide. Abdomen 4.48 long, 3.12 wide. Total length 8.5.

Colour: carapace and chelicerae dark red brown with narrow broken paramedial bands of white hair, narrow pre-fovea band and a band from fovea along each posterior strial ridge; abdomen dorsally with large trianguloid scute in anterior one-fifth; lateral edges of scute with narrow band of white hairs with enlarged posterior apex, middle patches ovoid, posterior patches each barbel-shaped, laterally dark with weak mottling close to venter. Legs dark brown with paler tips to femora. Eyes: PME less than one diameter from PLE and just over one diameter apart. Chelicerae: with shield of thick black hair over anterior fang edge. Dentition: R2, P3. Legs: RCH a pinhead. Trochanter IV distinctly notched but shallow, indistinct on I–III. Scopula: on all leg tarsi and weak in distal two-thirds of metatarsi I and II. Spines: I: fe p1d3; pa 0; ti v2.2w; me v2.1.0. II: fe p1d3; pa 0; ti v1.1w; me v2.2.0. III: fe p2d3r2; pa 0; ti p2r2v2.2.2; me p3r3v2.2.3. IV: fe p1d3r1; pa 0; ti p2d1r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2; pa p1d2; ti p2d2; ta p2d1. Epigyne: genital scute with paragenital brackets. Genital plate broad, flat with two lateral pits, each with thick diagonal septum presumably locked by RTA and paracymbial spine. Abdomen: ventral scute absent but tracheal scute a raised teat. Colulus absent.

Distribution and Habitat. Known from open forest and heath from north Queensland to a regenerated sandmining site ("Yarraman") on North Stradbroke Island, southeastern Queensland.

***Nyssus robertsi* sp. nov.**
(Fig. 89d, e. Map 48)

Material. **Queensland**: holotype ♀, Shiptons Flat, 15°48'S, 145°15'E, rainforest, 1975, L. & C. Roberts, QM S39545.

Diagnosis. The female differs from those of *N. paradoxus* sp. nov. in that the diagonal septa in the epigyne strongly widen anteriorly and extends to the epigastric ridge. Male unknown.

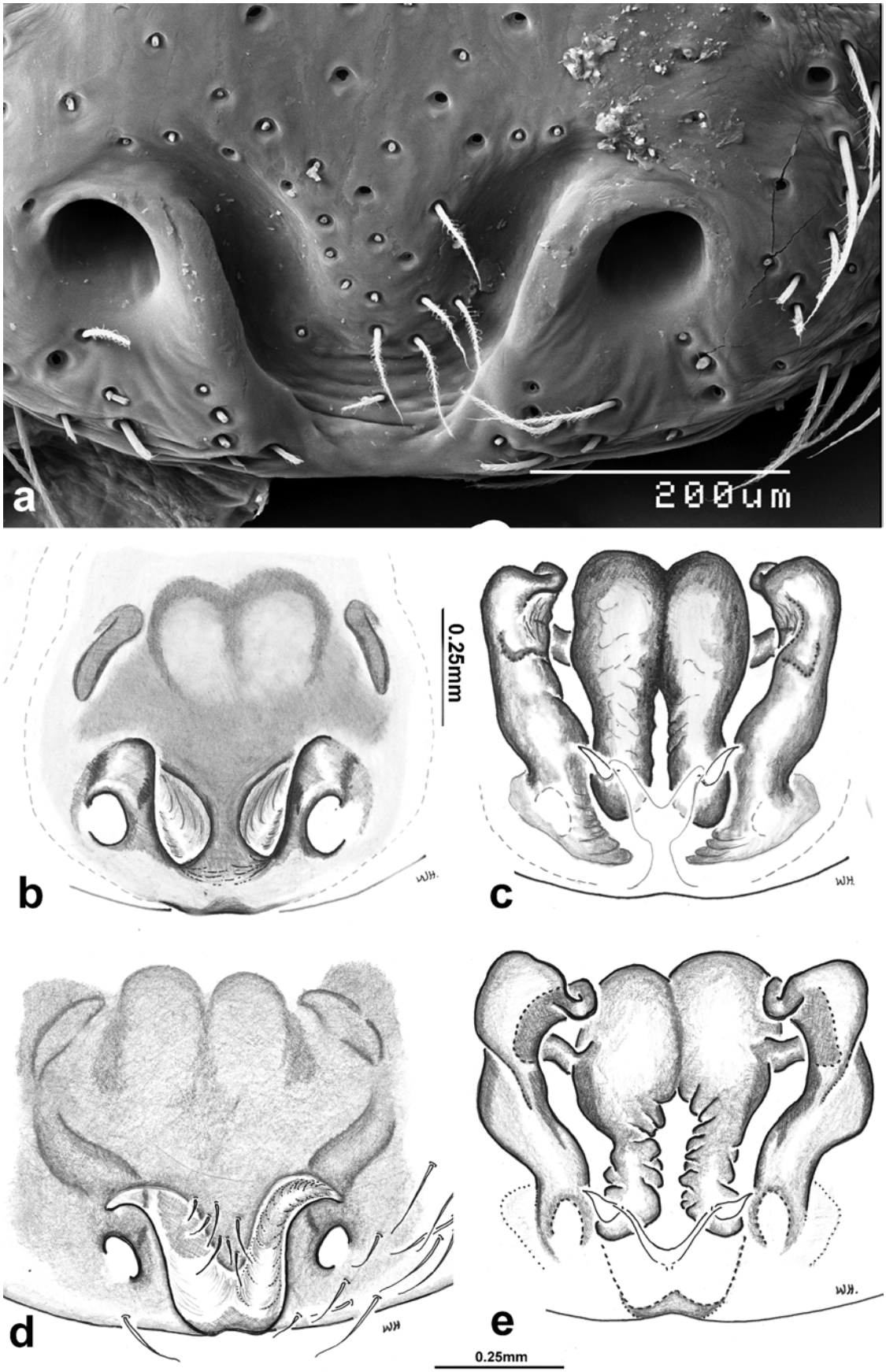


FIGURE 89. *Nyssus* sp. nov., epigyne: a–c, *N. paradoxus* sp. nov., female, a, scanning electron micrograph, external; b, c, allotype female QM S27408, external (b), internal (c). d, e, *N. robertsi* sp. nov., holotype female QM S39545, external (d), internal (e).

Etymology. Named in honour of Lewis Roberts, a remarkable collector, naturalist and bushman in the Cooktown area.

Description Holotype Female QM S39545

Carapace 3.84 long, 3.04 wide. Abdomen 3.68 long, 2.24 wide, Total length 7.7.

Condition poor; abdomen contracted, hair rubbed from carapace and legs; legs faded orange brown. Chelicerae with *ca.* 6 thick curved setae on low fang shield. Femora III and IV with strong subdistal constriction. Three weak spines ventrally on palpal femur. Otherwise like *N. paradoxus* sp. nov. except abdomen ventrally pallid and contracts to darker flanks. Eyes, spines and discernible patterns similar. Tracheal spiracle papular. Epigyne: with wider diagonal septa than in *N. paradoxus* sp. nov.

Distribution and Habitat. Known only from rainforest at Shiptons Flat, northeastern Queensland.

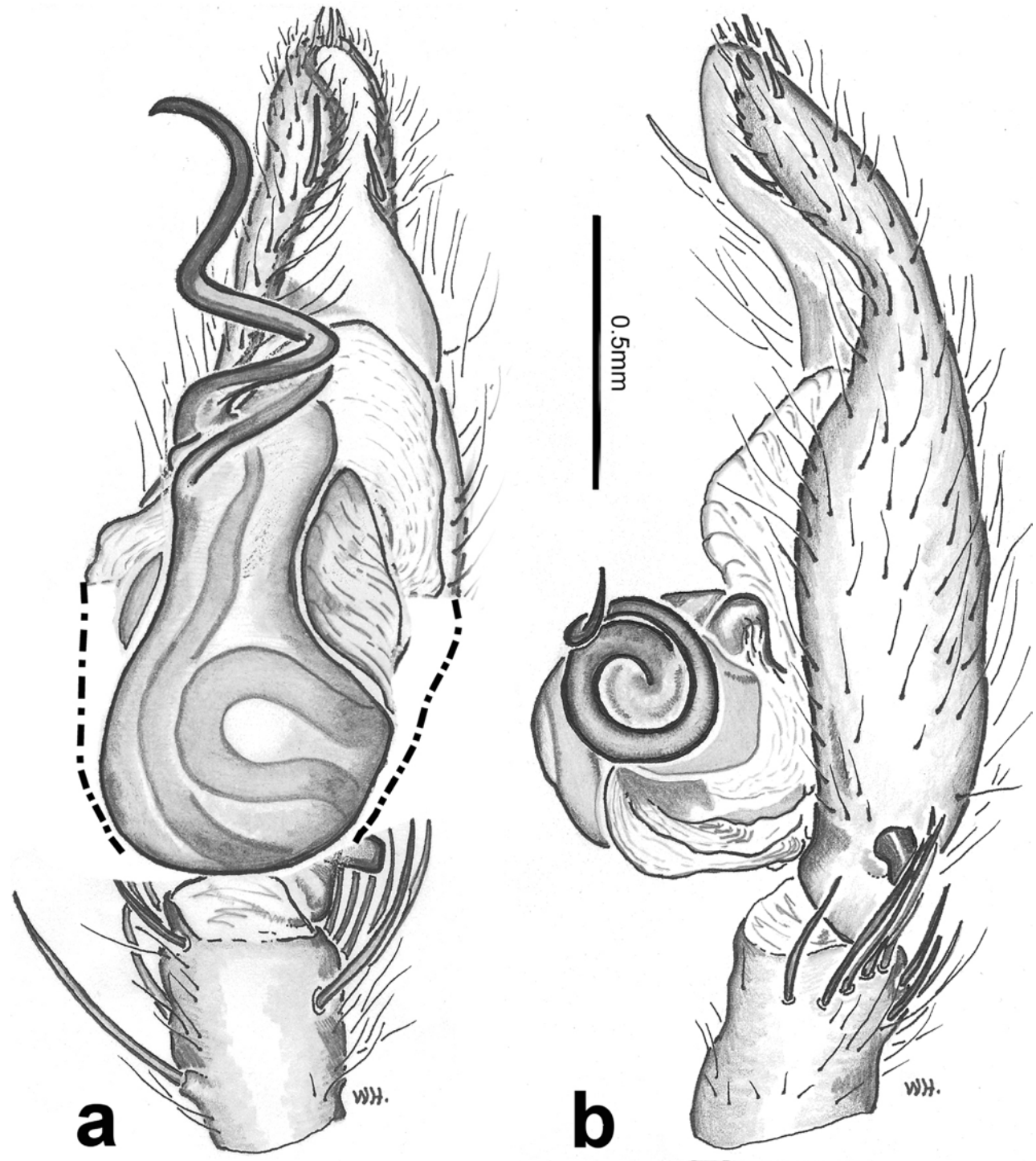
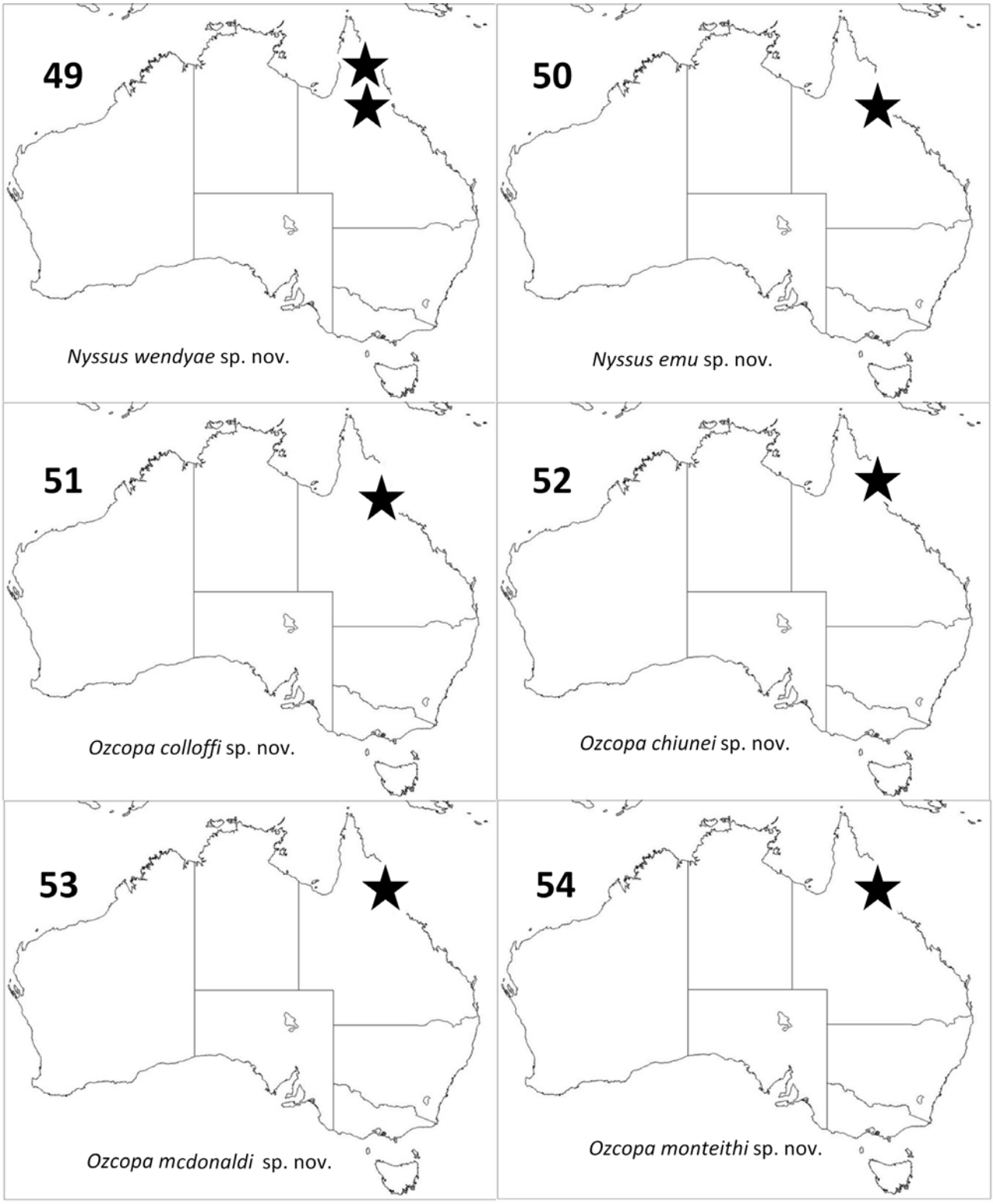


FIGURE 90. *Nyssus wendyae* sp. nov.: a–c, holotype male, QM S48375, palpal tibia, bulb and cymbium (mirrored), ventral (a) and retrolateral (b) views.



MAPS 49–54. Records of Australian species of *Nyssus* Walckenaer,1805 and *Ozcopa* gen. nov.

***Nyssus wendyae* sp. nov.**
(Fig. 90a, b. Map 49)

Material. **Queensland**: holotype, ♂, Lakefield National Park, Cape York, Old Laura Stn, 15°34'S, 144°27'E, 200m from Laura River, dry creek bed/lagoons, pitfall, 1–10 Jul 1991, J. Peters, QM S48375. Paratype: **Queensland**: ♂,

Steve Irwin Wildlife Reserve, Cape York, 12°17'13"S, 142°20'31"E, open forest, vehicle vibration, 13 Sept 2013, B. Baehr, R. Raven, QM S97457.

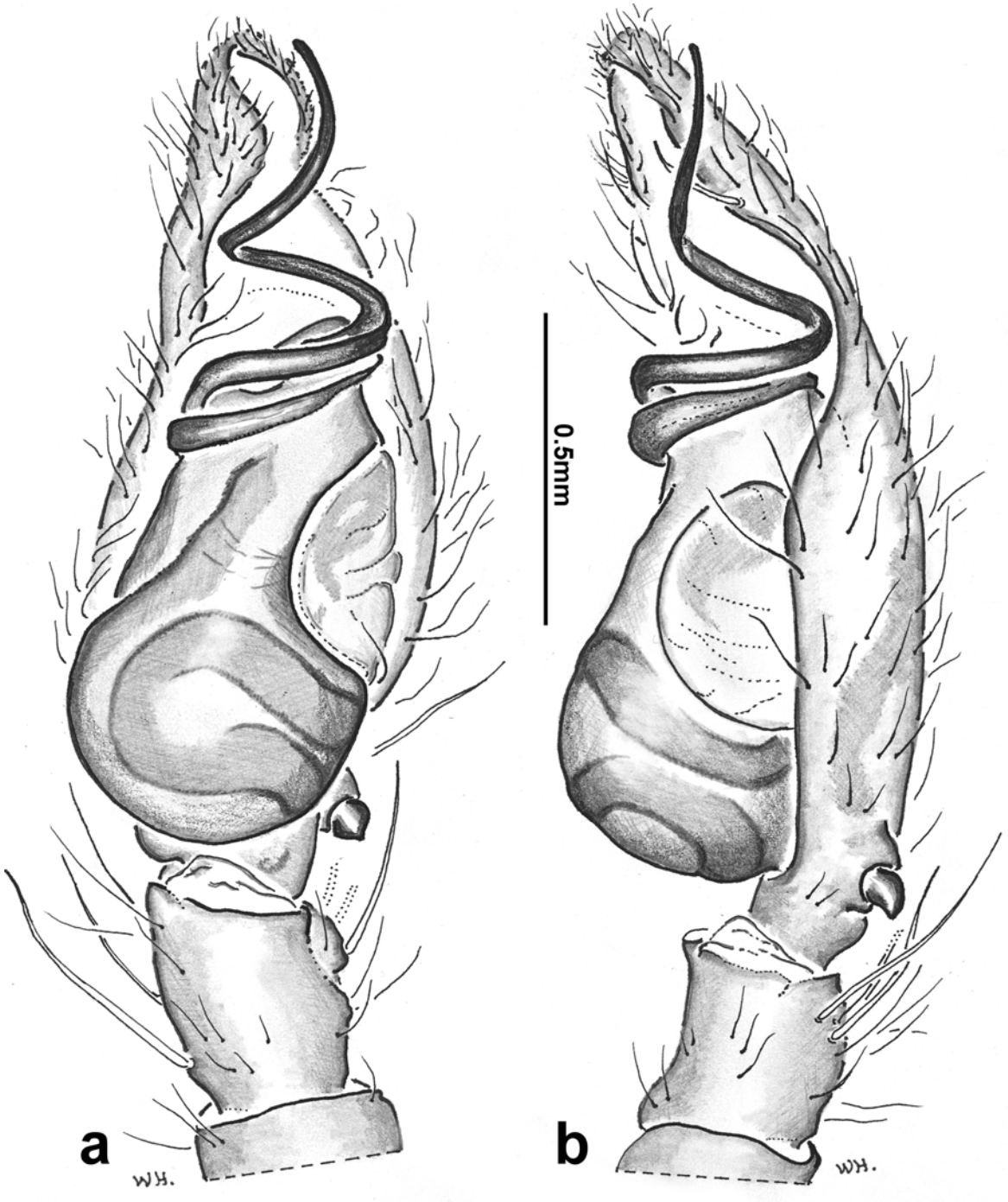


FIGURE 91. *Nyssus emu* sp. nov., holotype male, QM S22183; a, b, palpal tibia, bulb and cymbium, ventral (a) and retrolateral (b) views.

Diagnosis. The males differ from those of *N. paradoxus* sp. nov. in the absence of the tibial apophysis (Fig. 90a, b) and from *N. emu* sp. nov. by the short spines on the distal cymbium, strong spine-like bristles on the retrolateral edge of the palpal tibia, as well as the slightly smaller diameter of the embolic spiral.

Etymology. Named in honour of Wendy Hebron (née Rawlinson) who persisted in keeping the male before my eyes to ensure it was assessed and included.

Description. Holotype male QM S48375

Carapace 3.35 long, 2.40 wide. Abdomen 3.65 long, 2.05 wide. Total length 7.1.

Colour: carapace and abdomen faded, red brown. Carapace with narrow discontinuous submarginal band from ALE to posterior corner and narrow band of hair along posterior striae; abdomen dorsally with full scute with three large pairs of white hairs for the length with terminal patch of white hair. Carapace: with fine pile of golden hairs. Eyes of anterior row smaller than posterior. Legs: I missing. Coxae and sternum pustulose. Femora III and IV with distinct subdistal constriction. Spines: I, absent. II: fe p1d3r2; pa 0; ti v2.2.0; me v2.2. III: fe p2d3r2; pa 0; ti p2r2v2.2.2; me p2r2v2.2.4. IV: like III but fe p1d3r1. Mid-ventral pair on metatarsi II and IV clearly longer than others. Abdomen: ventral scute narrows strongly to back; tracheal scute trianguloid. Palp: cymbium distally slightly twisted; paracymbial spine strong; tibial apophysis absent but cage of strong bristles in same position; embolus long broadly spiralled.

Distribution and Habitat. Known only from Lakefield National Park, near Laura, and Steve Irwin Wildlife Reserve, Cape York, northern Queensland, areas of open forest.

Remarks. The male palp of *N. wendyae* sp. nov. has a "cage" of long strong spine-like bristles at the same point as the megaspines and spur arise on the tibia of *N. paradoxus* sp. nov. The "cage" is considered the precursor of the tibial spur.

***Nyssus emu* sp. nov.**
(Fig. 91a, b. Map 50)

Material. Queensland: holotype ♂, Eight Mile Ck (NQ31/1), 18°40'S, 144°42'E, eucalypt woodland, pitfall, 6 Nov 1991–26 Jul 1992, P. Lawless, R. Raven, M. Shaw, QM S21883. Paratypes: **Queensland**: 5♂, same data as holotype, QM S21840, S21849, S21850, S21865, S21873.

Diagnosis. Males are unusual in having a very widely coiled embolus (Fig. 91a, b) and differ from those of *N. wendyae* sp. nov. in lacking both short spines on the distal cymbium and strong bristles on the retrolateral edge of the palpal tibia, as well as the slightly larger diameter of the embolic spiral. Female unknown.

Etymology. The specific epithet is a noun in apposition taken from the large Austalian flightless birds common in the type locality.

Description Holotype male QM S21883

Carapace 3.75 long, 2.75 wide. Abdomen 4.17 long, 2.50 wide. Total, 8.0.

Colour: carapace dark red brown with broad bands of white hair anteromedially to fovea, submarginally and a pair in posterior striae; abdomen with dark red brown scute with paired white hair patches; a long pair anteriorly, two large ovoid, two lateral pairs beside tip and white patch on the tip; no white spots on flanks; ventrally sternum, coxae and scutes dark red brown. Femora dark brown with lateral bands of white hair; patellae to tarsi I–II paler brown, rest dark brown. Distal patella and tibia IV with band of white hair. Carapace: uniform cover of black feathery hairs; fovea short, set *ca*. one length from gradual posterior slope. Legs: femora III and IV with strong subdistal constriction. Scopula on metatarsi and tarsi I and II. Spines: I: fe p1d2; ti v2.2(w); me v2.2. II: fe p1d3; ti v1.1(w); me v2.2. III: fe p2d3r2; ti p2r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r1; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2. Abdomen: dorsal scute for 7/8 length without collar; post-epigastric sclerites short, not distally sclerotised; ventral scute converges from base to weakly separate tracheal scute, strongly asymmetrical from above with long tip apically unsclerotised, a small cone. Colulus absent. Palp: tibia with ventral groove; cymbium with large but short paracymbial spine on raised base; bulb large, narrows gently to broad flat pre-embolic ridge with long coiled embolus. Subtegulum evident slightly prolaterally with strong retrolateral indentation.

Distribution and Habitat. Known only from Eight Mile Creek, near Greenvale, west of Townsville, north-eastern Queensland; the area is open grassland and eucalypt forest.

***Ozcopa* gen. nov.**

Diagnosis. Males differs from those of *Copa kabana* sp. nov. in the presence of a paracymbial process and spine and females in the large diagonally oval copulatory fossae. Males and females differ from those of *Echinax* Deeleman-Reinhold, 2001 by the absence of the long patellar spines and the presence of a paracymbial process and spine.

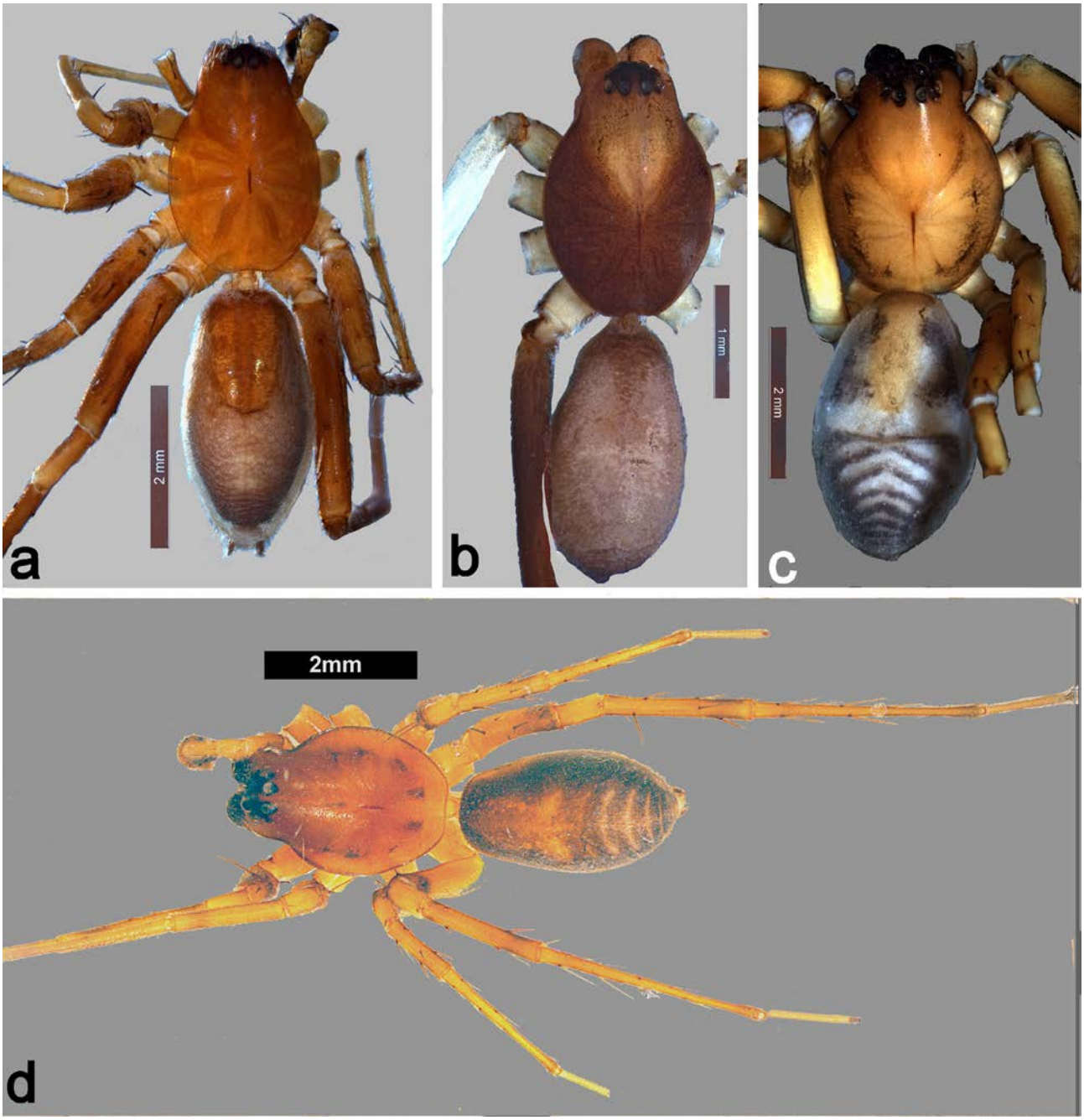


FIGURE 92. *Ozcopa* spp., habitus: a, *O. mcdonaldi* sp. nov.; b, *O. monteithi* sp. nov.; c, *O. zborowskii* sp. nov., d, *O. chiunei* sp. nov.

Etymology. An arbitrary combination of letters based on *Copa*; the gender is that of *Copa*.

Type species: *Ozcopa colloffi* sp. nov.

Description. Pallid castianeirines with dark pattern medially on carapace and abdomen. Lateral profile of carapace (Fig. 2e): high but more or less flat or slightly arched for its length; marginally highest point behind fovea at shallowly sloping posterior declivity; eyes set behind clypeus edge. Retrolateral face of large chelicerae smooth (Fig. 2e). Eight eyes in two rows, front row slightly recurved, back row slightly procurved (Fig. 16f). AME clearly the largest, followed equally by PLE and PME. Group occupies 0.6 of head width. Chelicerae well developed; two teeth on retromargin; three on promargin; fang shield and thickened setae in females absent to triangular with fringe of long distally serrate hairs; fang shield small to absent in males. Scopula absent in males, weak on metatarsi and tarsi I and II of females; preening combs absent. Spines similar on all legs. Tibiae I and II with 3–4 pairs of long spines ventrally, metatarsi I and II with two ventral pairs. Feathery hairs on legs. Trochanter IV with

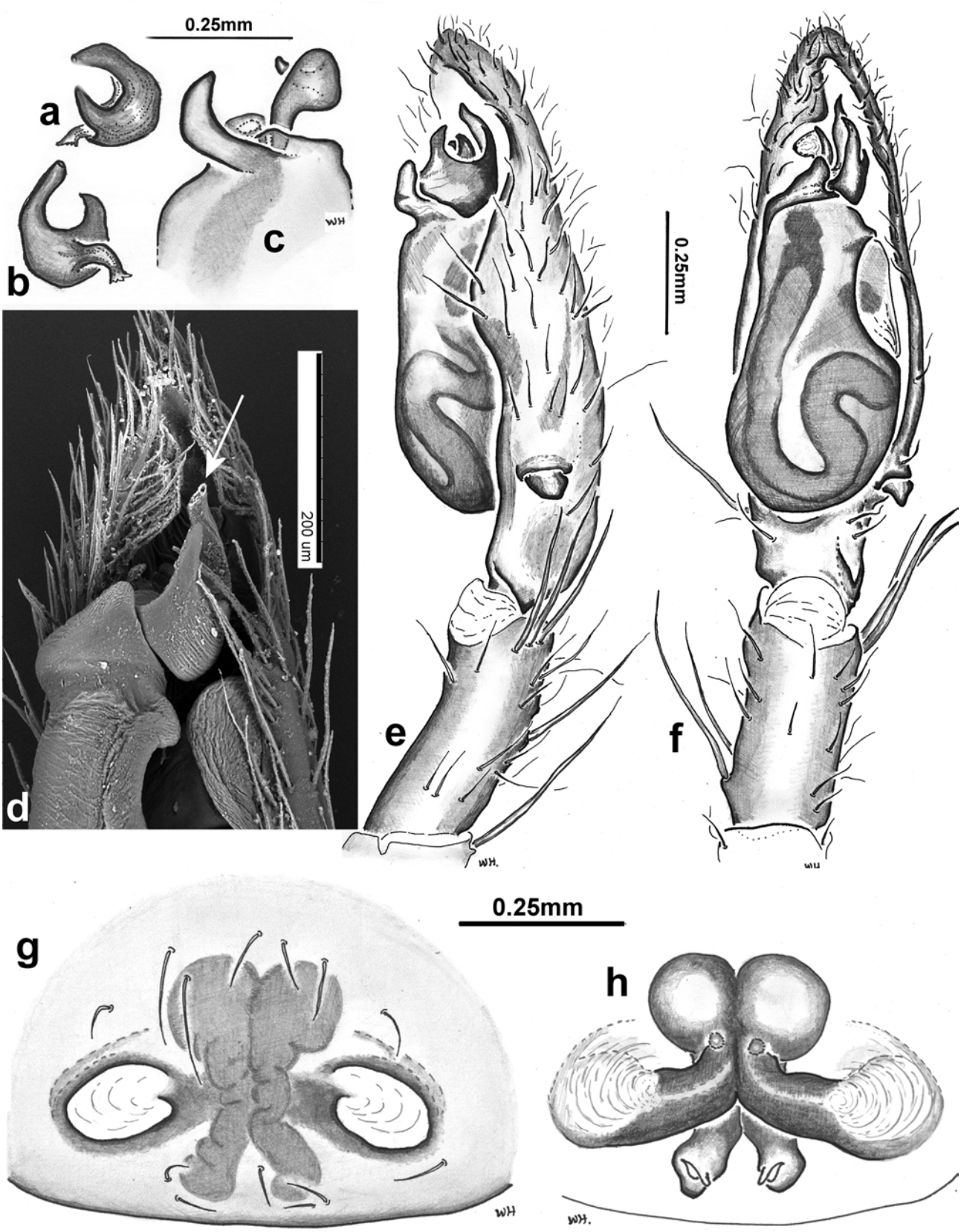


FIGURE 93. *Ozcopa colloffi* sp. nov., holotype male, QM S31508; a–f, male palp,: a–d, embolic process of QM S39263, retrolateral (a), prolateral (b) and ventral view (c, d); e, f palpal tibia, bulb and cymbium, retrolateral (e) and ventral view (f); g, h, allotype female, QM S31527: epigyne, external (g), and internal (h).

shallow but distinct notch; shallower on I–III. Legs I, II and IV of similar thickness, leg III thinner; femur IV distally unmodified. Male palp: paracymbial spine set well forward of basal edge (Fig. 93e, f); embolus a simple short spiral (*O. zborowskii* sp. nov., *O. mcdonaldi* sp. nov., Figs 94a, 96b) or with complex tip (*O. colloffi* sp. nov., *O. margotanderseni* sp. nov., and *O. monteithi* sp. nov., Figs 93a–f, 94c–e, 97a–c); basal cymbium with long edge evident proximal to bulb (Figs 93e, f, 94c, 97a). Abdomen with small triangular dorsal scute in males (Fig. 92a–c), ventral scute present in *O. colloffi* sp. nov. and *O. zborowskii* sp. nov.) or absent. Genital plate sclerotised, forming wide ring around anterior abdomen to pedicel; tracheal spiracle with short sclerotised edge, no plate. Epigyne externally two large transverse oval fossae (Figs 93g, 95d), anteriorly a rounded edge; posteriorly a hooded ridge; fossae pass centrally to two large domed receptacula, folding back to form two divergent lobes from which fertilisation duct arises (Figs 93h, 95e).

Distribution and Habitat. Known only from rainforests of north-eastern Queensland focussed on the Wet Tropics World Heritage area.

Species included. *Ozcopa chiunei* sp. nov., *O. colloffi* sp. nov., *O. margotanderseni* sp. nov., *O. monteithi* sp. nov., *O. mcdonaldi* sp. nov., and *O. zborowskii* sp. nov.

Remarks. The embolic tip in three species of *Ozcopa* gen. nov. is not simple but quite complex (Figs 93a–f, 94c–e, 97a–c), which adds a refinement to the concept of the castianeirine bulb that is typically pear-shaped.

Key to species of *Ozcopa*

Males

1. Embolus spirals to simple tip (Figs 94a, 96b) 2
   Embolus with complex tip (Figs 93a–f, 94c–e, 97a–c) 4
2(1). Embolus tip directed diagonal retrodistally (Figs 94a, 96a) 3
   Embolus tip directed diagonal prodistally (Fig. 97a) . . . . . *O. chiunei*
3(2). Embolus tapers gradually (Fig. 94a) . . . . . *O. mcdonaldi*
   Embolus short, blunt (Fig. 96a) . . . . . *O. zborowskii*
4(1). Embolus tip 4–pronged (Fig. 93e) . . . . . *O. colloffi*
   Embolus not as above 5
5(4). Embolus tip with single distal tip with three short conical processes around its base (Fig. 94c–e) . . . . . *O. monteithi*
   Embolus one of two cross-over tips (Fig. 97c, d) . . . . . *O. margotandersenae*

Females (of *O. mcdonaldi* sp. nov., *O. chiunei* sp. nov., *O. margotandersenae* sp. nov. and *O. zborowskii* sp. nov. unknown).

1. Copulatory fossae transversely oval (Fig. 93g) . . . . . *O. colloffi*
   Copulatory fossae inclined oval (Fig. 95d) . . . . . *O. monteithi*

Ozcopa colloffi sp. nov.

(Figs 16f, 93a–h. Map 51)\

Material. Queensland: holotype ♂, Hugh Nelson Ra, 17°27'S, 145°29'E, rainforest, flight intercept trap, 2 Oct–1 Nov 1995, L. Umback, QM S31508. Paratypes: **Queensland**: Hugh Nelson Ra, 17°27'S, 145°29'E, rainforest, pitfall & intercept traps, 2 Oct–1 Nov 1995, L. Umback: ♂, QM S31509; 1♂ 1♀, QM S31528; allotype 1♀, QM S31527; 1♀, same data but, 3 Jul–1 Aug 1995, P. Zborowski, QM S39271; 1♂, same data but Dec 1994–3 Jan 1995, P. Zborowski, QM S39270; 1♂, malaise trap, 1 Aug–1 Sep 1995, L. Umback, QM S39267; 1♂ 1♀, 1–30 Nov 1995, QM S39268; 1♂, 1 Aug–1 Sep 1995, QM S39269; 1♀, malaise trap, 2 Oct–1 Nov 1995, QM S39266. 1♂, Bellenden Ker Range, 0.5 km S Cable Tower 7, 17°16'S, 145°51'E, rainforest, pitfall, 17–24 Oct 1981, EARTHWATCH/Qld Museum, QM S27657; 1♀, same data but, cable tower 3, sieved litter, 25–31 Oct 1981, QM S26238; 1♂, Hughes Rd, Topaz, 17°26'S, 145°43'E, pitfall, Sep 1993–Dec 1993, G. Monteith, S. Breeden, QM S23062; 1♀, Longlands Gap (BS1), 17°28'S, 145°29'E, rainforest, flight intercept trap, 30 Nov 1995–3 Jan 1996, L. Umback, QM S39240; 1♀, Malaan SF, 17°35'S, 145°35'E, litter, 20–24 Apr 1978, V. Davies, R. Raven, QM S29409. Massey Ck (BS3), 17°37'S, 145°34'E, rainforest, malaise or intercept traps, P. Zborowski / L. Umback: 1♀, 6 Mar–5 Apr 1995, QM S39247; 1♀, 5 Apr–3 May 1995, QM S39243; 1♂, 1 Dec 1994–3 Jan 1995, QM

S39244; 1♀, 30 Nov 1995–3 Jan 1996, QM S39251; 1♂, 26 Mar–2 May 1996, QM S39246; 1♀, 5 Apr–3 May 1995, QM S39245; 1♀, 1 Dec 1994–3 Jan 1995, QM S39260; 1♂ 1♀, 1–30 Nov 1995, QM S39253; 1♂, 2–30 Nov 1995, QM S39254; 1♂ 1♀, 1 Dec 1994–3 Jan 1995, QM S39241; 1♂, 3 Oct–2 Nov 1995, QM S39252; 1♀, 2 Jun–4 Jul 1995, QM S39249; 1♂ 2j, 4 Jul–2 Aug 1995, QM S39242; 1♂, 5 Apr–3 May 1995, QM S39248; 1♀, pitfall, 30 Nov 1995–3 Jan 1996, QM S39250. 1♀, Mossman Bluff Track, 5–10 km W Mossman (Site 9), 16°28'S, 145°22'E, rainforest, pitfall, 20 Dec 1989–15 Jan 1990, G. Monteith, G. Thompson ANZSES Expedition, QM S33944; 1♀, Mt Edith (GS2), 17°06'S, 145°37'E, rainforest, malaise trap, 31 Oct–29 Nov 1995, L. Umback, QM S39255; 1♀, Mt Edith (GS2), 17°06'S, 145°37'E, rainforest, flight intercept trap, 29 Sep–31 Oct 1995, L. Umback, QM S39259; 1♂ 1♀, Mt Edith (GS2), 17°06'S 145°37'E, rainforest, flight intercept trap, 3 Jan–4 Feb 1995, P. Zborowski, QM S39257; 1♂, Mt Edith (GS2), 17°06'S, 145°37'E, rainforest, flight intercept trap, 31 Oct–29 Nov 1995, L. Umback, QM S39256; 1♂, Mt Edith (GS2), 17°06'S, 145°37'E, rainforest, pitfall, 3 Jan–4 Feb 1995, P. Zborowski, QM S39258. Mt Haig, 17°06'S, 145°36'E, flight intercept or malaise trap, P. Zborowski or L. Umback: 1♂, 1 Dec 1994–3 Jan 1995, QM S31511; 1♂, 3 Jan–4 Feb 1995, QM S39263; 1♀, 6 Apr–4 May 1995, QM S39261; 1♂, 31 Oct–29 Nov 1995, QM S39265; 1♂, 31 Oct–29 Nov 1995, QM S39264; 1♀, 31 May–30 Jun 1995, QM S39262; 1♂, Tumoulin Road, Evelyn, 17°30'S, 145°28'E, rainforest, baited pitfall trap, 5–11 Feb 1998, G. Monteith, D. Cook, QM S34985; 1♀, Tully R Xing, 10 km S Koombooloomba Dam, 17°56'S, 145°37'E, pitfall & intercept traps, 8 Dec 1989–4 Jan 1990, G. Monteith, G. Thompson, H. Janetzki, QM S49690. All in northeastern Queensland.

Diagnosis. Males differ from those of *O. zborowskii* in the absence of dorsal and ventral abdominal scute and in the complex embolic apex (Fig. 93a–f); females differ from those of *O. monteithi* in the bigger head of the spermathecae (Fig. 93h).

Etymology. The species epithet is in honour of Dr Matt Colloff, Australian National Insect Collection, CSIRO, in recognition of his great contributions to mite taxonomy.

Description holotype male QM S31508

Carapace 2.60 long, 1.96 wide. Abdomen 2.88 long, 1.32 wide. Total length 5.6.

Colour: carapace fawn yellow with dark narrow line submarginally and two dark areas on lateral caput, eye region black; legs brownish yellow to orange; abdomen fawn with narrow black band around dorsal shoulder; venter pallid. Carapace: distinctly constricted anteriorly with well defined caput, in lateral profile caput slightly higher. Striae distinct; fovea a long narrow groove. Fine black hairs directed centrally cover surface except margins. Clypeus = one AME diameter. Eyes: all of similar shape, size and colour but PME appear bigger. MOQ clearly longer than wide but narrower behind than in front; group occupies 0.6 of head width. Chelicerae: well developed; fang and furrow short, two close teeth distally on retromargin; three close, outer two smaller on promargin; distal lobe distinct, rounded, with long curved setae; boss small. Maxillae: short subrectangular, serrula long. Labium as long as wide, distally domed. Sternum wide cordate with small intercoxal projections. Pedicel: not heavily sclerotised. Legs: femur IV slightly longer than III; covered with simple setae, white scale hairs on ventral tibia I; scopula, preening combs absent; coxae rounded with small basal processes; tarsi slender, not curved or basally enlarged. Claws: obscured by dense short tuft. Trochanter IV with shallow but distinct notch; shallower on I–III. Trichobothria: two long rows of long filiform evident on tarsi. Spines: well developed but not strong. I: fe pv1p1d3r2; pa 1 apical bristle; ti p2v2.2.2; me v2.2. II: fe pv1p2d3r2; pa 0; ti p2r2v2.2.2; me v2.2. III: fe p3d3r3; pa 1 apical; ti p2d1r2v2.2.2; me p3r3v2.2.2. IV: fe p2d3r3; pa 1 apical; ti p2d1r2v1.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d2 (distal and basal); ti p2d1r1. Abdomen: dorsal scute for half length in most males, weak in holotype; weak ventral scute extends over to booklungs. Tracheal spiracle marked by cone, apically sclerotised. Spinnerets: all short; ALS twice diameter of PLS. Palp: tibia longer than wide without basal flange or tibial apophysis but with three long thick spine-like bristles on single mound on retrodorsal distal corner; cymbium with broad basal margin, retrolaterally with groove and strong short hooked beak like process (directed proximal) and medially extending over bulb in broad lobe; bulb long pyriform with retrodistal invagination; embolic region four pronged; ventral triangular fold with two retrolateral chelate lobes and (embolus) short hooked prodistal lobe with small basal unsclerotised window (median apophysis analogue); sperm duct prolaterally sinuous with basal and subbasal loop.

Allotype Female QM S31527. Like ♂ except as follows:

Carapace 3.32 long, 2.48 wide. Abdomen 3.92 long, 2.52 wide. Total length 7.2.

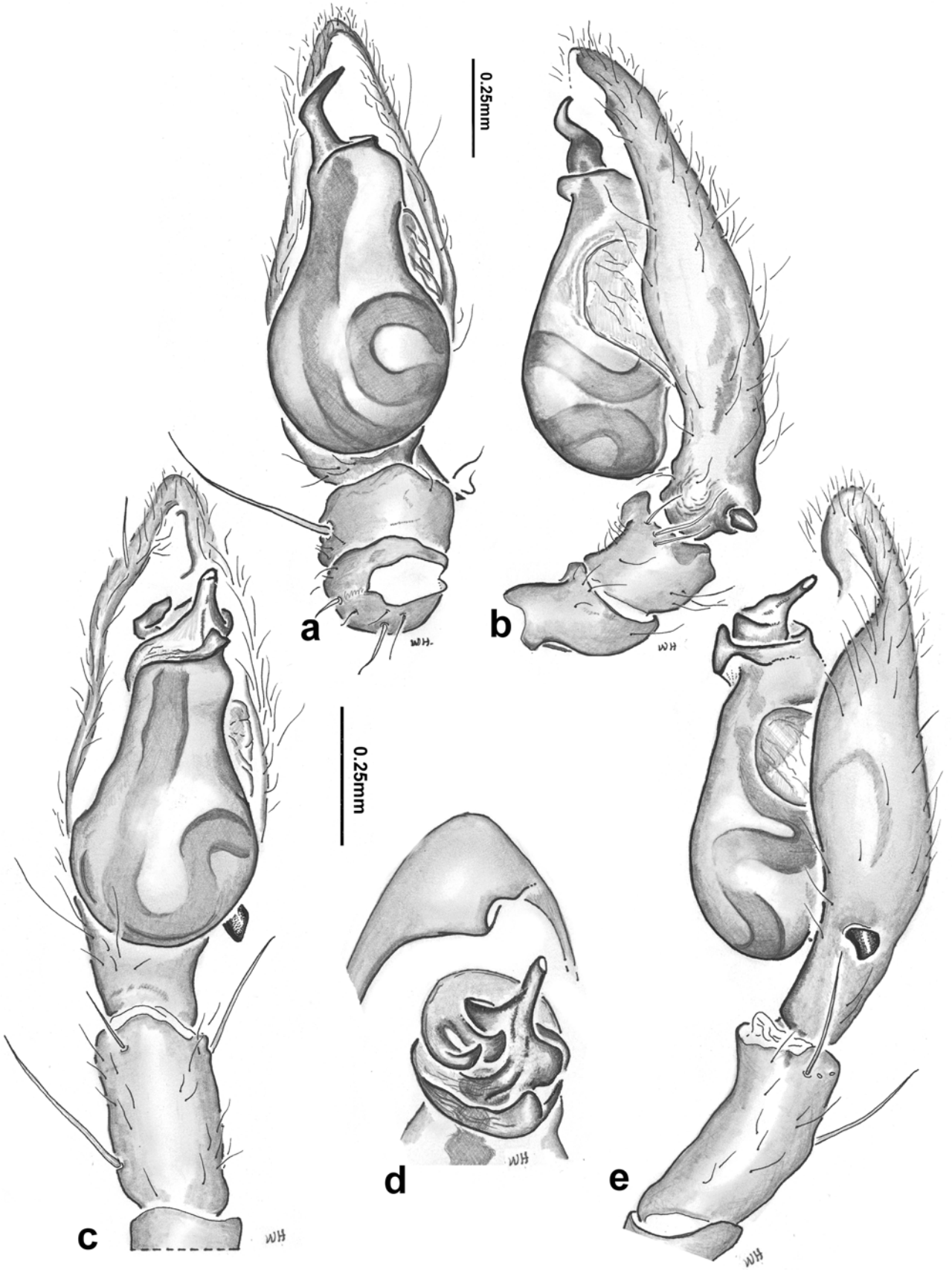


FIGURE 94. *Ozcopa* spp. nov., male palpal tibia, bulb and cymbium: a, b, *O. mcdonaldi* sp. nov., holotype, QM S29533, ventral (a) and retrolateral view (b); c–e, *O. monteithi* sp. nov., holotype, QM S21955, ventral (c), axial (d, scale =0.13mm) and retrolateral view (e).

Maxillary serrula long. Prodistal cheliceral lobe rounded distinct, both margins short, with two teeth, basal ventral edge of paturon with band of thorn-like setae. Spines: I: fe pv1p2d3r2; pa 0; ti v2.2.2; me v2.2. II: fe pv1p2d3r3; pa 0; ti p1v2.2.2; me v2.2. III: fe pv1p2d3r3; pa d1 apical ti p2d1r2v2.2.1; me p3r3v2.2.1. IV: fe pv1p2d1.1.2 r2; pa d1 apical ti p2d1r2v2.2.1; me p3r3v2.2.1. Palp: p1d2; pa p1d1.1 (apical and basal) ti p2d2 ta p1r1v1 basal. Legs: patellae I and II with apicodorsal bristles, homologue on III and IV is spine; tibia I and II with three long, slightly overlapping pairs spines not on raised bases, on metatarsi III and IV two pairs long, stronger not overlapping; feathery hairs on femora (I–IV), patellae and tibiae and metatarsi (III and IV); light scopula on tarsi I and II; at least two thick setae centrally on retroface of coxae I–III. Palp: tarsus slightly enlarged subapically, no hair clusters dorsally or near claw, claw normal curved. Scutes: genital plate sclerotised, forming wide ring around anterior abdomen to pedicel; thin triangular dorsal shield anteriorly; tracheal spiracle with short sclerotised edge, no plate. Epigyne: externally two large transverse oval fossae, anteriorly a rounded edge; posteriorly a hooded ridge; fossae pass centrally to two large domed receptacula, folding back to form two divergent lobes from which fertilisation duct arises.

Distribution and habitat. Known from rainforest in northeastern Queensland.

***Ozcopa chiunei* sp. nov.**
(Figs 92d, 97a, b. Map 52)

Material. Queensland: holotype ♂, Cedar Bay [now part of Ngalba Bulal] National Park, [15°48'S, 145°20'E], P. Shears, G. Morse, QM S95187.

Diagnosis. The male differs from those of all other species in the dorsal scute being 0.6–0.7 long (Fig. 92d), a dorsal spine on tibiae III and IV, and the different shape of the embolus tip (Fig. 97a). Female unknown.

Etymology. The species epithet is in honour of Chiune Sugihara, 1900–1986, Japanese Vice-Consul in Lithuania who, during the Second World War, helped several thousand Jews escape from German-occupied Poland.

Description Holotype male QM S95187

Carapace 2.75 long, 1.90 wide. Abdomen 2.90 long; 1.60 wide. Total length 5.7. Colour: carapace light brown with dark submarginal bands; abdomen brown with dorsal scute for 0.7 of length with two irregular pallid zones anteriorly followed by 6 thin chevrons; chelicerae brown; legs light yellow to orange brown with diffused dark bands predistally on femora (save for palp) and basal and predistal tibia (save for palp). Eyes: AME slightly the largest, AER procurved, PER recurved. Legs: femora III and IV unmodified; femora, coxae and sternum slightly rugose. RCH small; distal bristle on apical patellae I–IV where it is a spine. Spines. I: fe pv1p2; pa 0; ti v2.2.2.2 (all strong); me v2.2. II, as I but fe p2d3. III: fe p2d3r1; pa 0; ti p2d1r2v2.2.2; me p2p3v2.2.4. IV: fe p2d3r2; pa d1; ti p2d1r2v2.2.2; me p2r2v2.2.4. Palp: fe p1d2; pa p1d2 (all weak); ti p2d1. Abdomen: ventral scute continuous with broad ridge enclosing tracheal spiracle. Palp: bulb pear-shaped with distal cone tapering gradually, embolus base a diagonal ridge, tip simple, reflexed, tapering tube; paracymbial spine low, broad.

Distribution and Habitat. Known only from rainforest near Cedar Bay, now part of Ngalba Bulal National Park, northeastern Queensland.

***Ozcopa mcdonaldi* sp. nov.**
(Figs 92d, 94a, b. Map 53)

Material. **Queensland**: holotype ♂, Springfield Station, 17°56'S, 144°25'E, open forest, fence trap, 26–28 Aug 1979, K. McDonald, QM S29533. Paratype: **Queensland**: 1♂, Twelve Mile Scrub, Gap Ck (site 20), 15°50'S, 145°19'E, 22–27 Nov 1975, V.E. Davies, QM S29526.

Diagnosis. Males differ from those of *O. colloffi* sp. nov. and *O. zborowskii* sp. nov. in the simple, long and apically bent embolus tip (Fig. 94a, b) and in the absence of a ventral scute. Female unknown.

Etymology. In honour of Mr Keith McDonald, passionate and tireless scientist then of National Parks and Wildlife Service.

Description holotype male QM S29533

Carapace 3.28 long, 2.24 wide. Abdomen 3.60 long, 1.84 wide. Total length 6.9.

Colour: carapace brown orange, legs brownish yellow without bands, leg IV darkest, abdomen brownish red with pallid area dorsally, ventrally brown with pallid hairs flanking medial lighter rectangle. Carapace: with light pile of fine black hairs, no scales, cuticle shiny smooth; fovea between coxae II and III. Three long setae behind eyes, one beside lateral eyes, one in front of AME, and one each on lateral clypeus. Eyes: all of similar size; front row recurved, back procurved. Spaces between back row equal at *ca*. 1.0 x PME. Chelicerae: fang and groove short. Dentition: 2R 3P; fang setae long, pallid. Labium subquadrate. Sternum with intercoxal extensions, domed, almost asetose. Legs: trochanters with shallow notches *ca.* 2x wider than deep. RCH not evident; scopula weak on tarsi, and on metatarsi I and II; claw tufts dense, high; feathery hairs on legs III and IV; slight predistal constriction on femur IV. Spines: I: fe pv1p2d3r1; pa 0; ti v2.2.0w; me v2.0w. II: fe p2d3r1; pa 0; ti v2.2.0w; me v2.0w. III: fe p2d3r2; pa 0; ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p3d3r2; pa 0; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa d1 apical, ti p2. Abdomen: shiny, asetose oval dorsal scute for *ca.* half length; genital and tracheal scutes only present; genital scute without collar; tracheal scute small, triangular. Spinnerets: ALS short, wide; PMS small, cylindrical; PLS *ca.* half diameter of ALS but slightly longer. Palp: tibia short, barrel-shaped with shallow ventral excavation; cymbium simple, grooved to tip, without apical enlarged setae; retrodorsally at base with large raised process bearing pointed paracymbial spine large, basal; large subtegular lobe retrolaterally, small prolaterally; embolus simple curved keel.

Distribution and Habitat. Known only from Springfield Station (which includes the Undara Lava tunnels), an area of open forest and also rainforest at Twelve Mile Scrub, both in northeastern Queensland.

***Ozcopa monteithi* sp. nov.**
(Figs 2e, 94c–e, 95a–e. Map 54)

Material. **Queensland**: holotype ♂, Mossman Bluff Track, 5–10 km W Mossman, Site 1, 16°28'S, 145°22'E, pitfall, 1–16 Jan 1989, G. Monteith, G. Thompson ANZSES Expedition, QM S21955. Paratypes: **Queensland**: allotype ♀, same data as holotype, QM S21925; 1♂ 1♀, as for holotype but, flight trap, 20 Dec 1989–15 Jan 1990, QM S16563; 1♂, as for holotype but (Site 2), 16°25'S, 145°20'E, pitfall, 20 Dec 1989–15 Jan 1990, QM S32641; 1♂, Mossman Gorge NP (NQ 15), 16°28'S, 145°20'E, pitfall, 1 Nov 1991–22 Jul 1992, P. Lawless, R. Raven, M. Shaw, QM S39553; 1♂, Cape Tribulation, 3k W (site 6), 16°05'S, 145°26'E, rainforest, pitfall, 23 Sep–7 Oct 1982, G. Monteith, D. Yeates, G. Thompson, QM S29477; 1♀ 1♂, same data but, 5–9 Jan 1983, G. Monteith, QM S29479; 1♀, Mt Boolbun South, camp, 15°57'S, 145°08'E, 850m. altitude, rainforest, intercept flight trap, 5 Nov 1995–11 Jan 1996, G. Monteith, D. Cook, L. Roberts, QM S41348; 1♀, same data but 4–6 Nov 1995, G. Monteith, QM S41071.

Diagnosis. Males differ from those of all other species in the entirely brown carapace and abdomen and embolus with a complex twisted double tip (Fig. 95a, b); females differ from those of *O. colloffi* in the smaller head of the spermathecae (Fig. 95d).

Etymology. In honour of Dr Geoff Monteith who has collected many of these new species.

Description holotype male QM S21955

Carapace 2.29 long, 1.58 wide. Abdomen 2.26 long, 1.23 wide. Total length 4.8.

Colour: carapace red brown with lighter caput; abdomen light red brown; ventrally, sternum red brown, coxae pallid, abdomen brown; legs I and II pallid, yellowish; femora III and IV brown; patellae–tarsi III yellowish but weak brown bands on basal patellae, subdistal tibiae. Carapace: covered with fine points; fovea at edge of gradual posterior slope. Almost glabrous. Eyes: two rows of similar width; AME slightly bigger than PME = PLE > ALE; f ront row recurved, back row procurved; eyes in tight group. Chelicerae: dentition: 2R, 3P, furrow transverse. Legs: trochanter IV with short deep notch; femora–tibiae with fine dark feathery hairs. Spines: I: fe pv1p1d3; ti v2.2.2; me v2.2. II: fe p2d3, as for I. III: fe p1d3r2, rest missing. IV: fe p3d3r3; ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa d1 distal ti p2. Tibia III with dorsal spine in paratype. Abdomen: dorsal scute long, narrow, weak, triangular to *ca*. half length; triangular brown colulus; tracheal scute weak with medial cone; ventral scute absent. Palp: tibia ventrally flattened; cymbium with undulating margin; not apical hirsute cone short, retrobasally with stout paracymbial spine; subtegulum narrowly evident on pro- and retromargins; tegulum constricts to broad pre-embolic ridge of broad flat hook with long acuminate embolus flanked by two lateral spines.

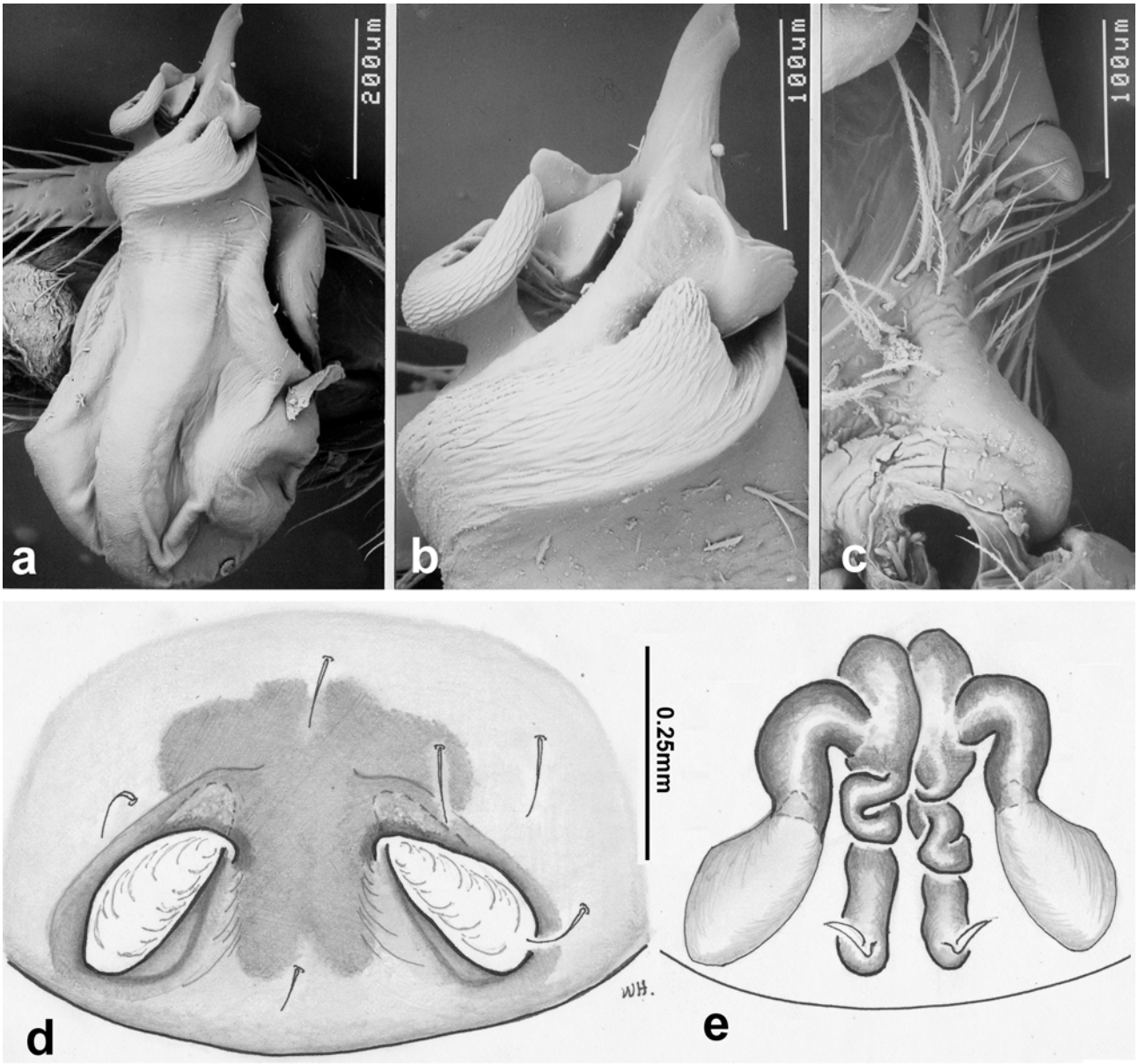


FIGURE 95. *Ozcopa monteithi* sp. nov.: a–c, scanning electron micrographs; a, b, male bulb (a) and embolic process (b), ventral view; c, paracymbial spine, ventral view; d, e, allotype female, QM S21925: epigyne, external (d), and internal (e).

Allotype Female QM S21925. Like ♂ except:

Carapace 3.12 long, 2.08 wide; abdomen 4.16 long, 2.16 wide. Total length 7.3. Palp, femora I–IV, patellae and tibiae III and IV, and basal half and distal eighth of tibia III and IV brown; otherwise legs pallid with pallid spot on prodistal tibiae III and IV. Band of white hair medially across dorsal abdomen. Carapace with uniform pile of fine white hair. Chelicerae robust, without thick fang setae. Claw tufts thin; claws with *ca.* six teeth higher than tufts. Spines as ♂. Palp: fe p1d2, v4 erect; pa d1.1; ti p1d1; ta probasal 2. Palpal claw distinct, dentate, tarsus predistally incrassate. Epigyne: with pair of large diagonal fossae with strong anterior ridge. Tracheal scute a small ridge.

Distribution and Habitat. Known only from rainforest in montane areas west of Mossman, north-eastern Queensland.

***Ozcopa zborowskii* sp. nov.**
(Figs 92c, 96a–c. Map 55)

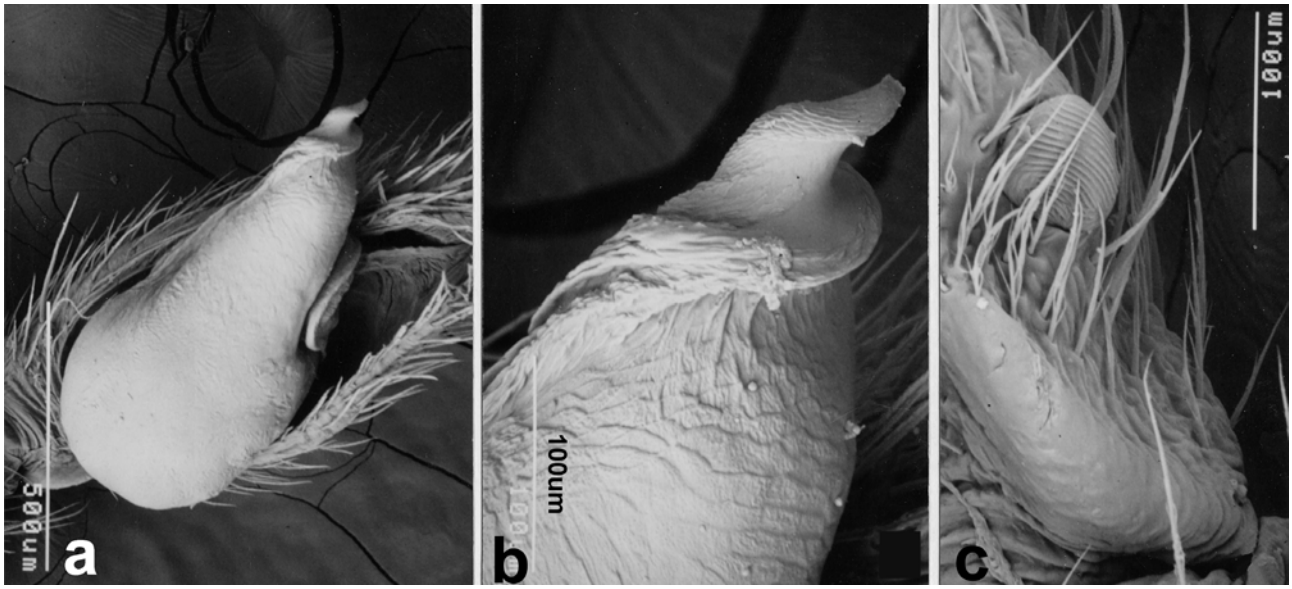


FIGURE 96. *Ozcopa zborowskii* sp. nov.: a–c, scanning electron micrographs, male bulb (a) and embolus (b), ventral view; c, paracymbial spine, ventral view.

Material. **Queensland**: holotype ♂, Mt Haig, 17°06'S, 145°36'E, malaise trap, 1 Dec 1994–3 Jan 1995, P. Zborowski, QM S31510. Paratypes: **Queensland**: 1♂, Mt Sampson, 15°48'S, 145°12'E, 26–28 Dec 1990, ANZSES expedition, QM S41104.

Other Material. **Queensland**: 1 penultimate male, 1 juvenile female, "Cooktown", MNHN 18211.

Diagnosis. The male palpal bulb resembles that of *O. mcdonaldi* sp. nov. in the simpler form but differs in lacking the strong keel at the base of the embolus (Fig. 96a, b). Female unknown.

Etymology. In honour of Dr Paul Zborowski, photographer, entomologist and accomplished author.

Description holotype male QM S31510

Carapace 3.88 long, 2.92 wide. Abdomen 4.44 long, 2.68 wide. Total length 8.3.

Colour: carapace brown orange with brown strial groove and weak submarginal band, legs orange with brown smudges on dental femora and tibiae; palp brownish yellow; abdomen dark brown with two large white patterns (serially) anteriorly, the second larger and 5–6 fine pallid boomerangs, anterior widest, each one successively smaller; dorsal scute brown orange, lateral fawn with medial brown orange scute to spinnerets; chelicerae dark brown; sternum maxillae and labium brown orange. Carapace: distinct anterior constriction, lateral caput parallel. Glabrous; fovea a long groove, caput well defined and slightly raised. Eyes: AME large; front row slightly recurved; back row strongly procurved. MOQ much longer than wide and wider in front than behind. Chelicerae, robust; margin and fang long, furrow more longitudinal; teeth low on margin; three similar teeth on retromargin; two teeth, basal smaller, on promargin. Maxillae with long serrula. Rounded rectangles basally narrow with distinct crescent groove on inner edge. Labium subquadrate. Sternum flat, cordate with lightly sclerotised triangular pre-coxal sclerites. Pedicel not fused, steep, wing-like. Legs: I longer than IV; covered sparsely with short fine setae; preening comb and scopula absent; brush of hair (not scopula) on distoventral metatarsi III and IV; claw tufts dense, enclose claws; *ca*. six long teeth on claws. Spines: I: fe pv1 strong p2d3r1; ti pv4 rv5; me v2.2. II: fe p3d3r1; pa apical hair ti p2 pv4 rv5; me v2.2. III: fe p3d3r3; pa apical bristle d1; ti p2d1r2v2.2.2; me p2r2 (all basal) v2.2.3. IV: fe p2d3r2; pa apical bristle ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp (strong spines): fe p1d2v2; pa p1 (bs) strong); ti p2 (basal) d1. Abdomen: ventral scute covers lungs with separate large ventral rectanglar scute and small area around wide sclerotised ridge of tracheal spiracle. Palp: femur with two erect spines ventrally, tibia longer than wide, cylindrical; cymbium long narrow with convex basal margin; small rounded process retrobasally and ridge to it; apical cone with central glabrous groove; no lateral extensions; bulb pyriform with sinuous spermathecae posteriorly to base, reflexes up and to side; retromarginal invagination; embolus a simple twisted cone with transverse collar.

Distribution and Habitat. Known only from rainforest in north-eastern Queensland.

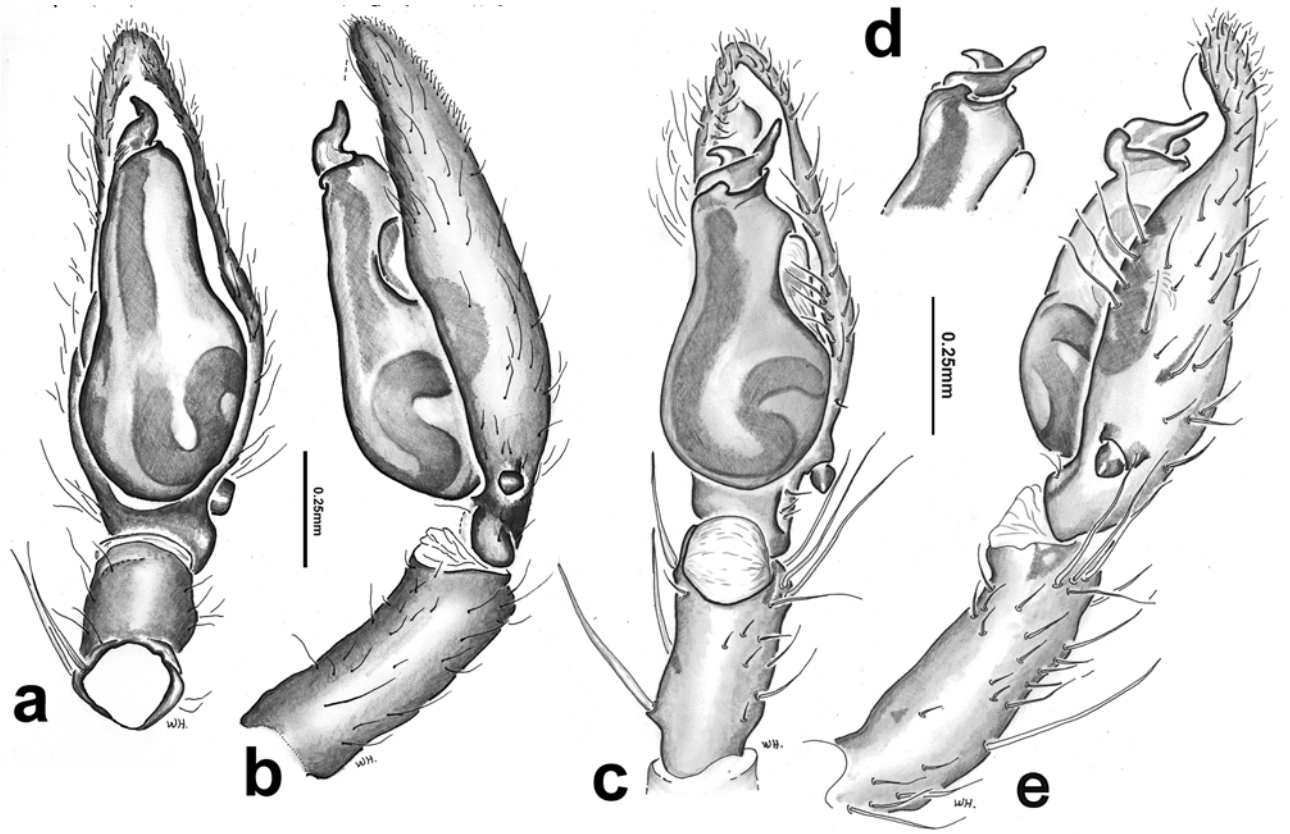


FIGURE 97. *Ozcopa* spp. nov., male palpal tibia, bulb and cymbium: a, b, *O. chiunei s*p. nov. holotype, QM S95187, ventral (a) and retrolateral view (b); c–e, *O. margotandersenae* sp. nov., holotype, QM S41377, ventral (c), axial (d, scale =0.13mm) and retrolateral view (e).

***Ozcopa margotandersenae* sp. nov.**
(Fig. 97a, b. Map 56)

Material. **Queensland**: holotype ♂, Mt Hartley, SW slope, 15°46'S, 145°19'E, rainforest, intercept flight trap, 8 Nov 1995–16 Jan 1996, G. Monteith, D. Cook, L. Roberts, QM S41377. Paratypes: **Queensland**: ♂, Cape Tribulation, 3k W (site 6), 16°05'S, 145°26'E, rainforest, pitfall, 5–9 Jan 1983, G. Monteith, QM S29475; 1♂, Massey Ck (BS3), 17°37'S, 145°34'E, rainforest, pitfall, 3 Oct–2 Nov 1995, L. Umback, QM S39462.

Diagnosis. A small species in which males differ from those of *O. zborowskii* sp. nov. and *O. colloffi* sp. nov. in the simpler form of the palpal embolus (Fig. 97a, b). Female unknown.

Etymology. Named for Margot Andersen, Director, Queensland Museum Foundation (2009–), for her much appreciated assistance in getting a high quality microscope and camera system which expedited the completion of this work.

Description. holotype male QM S41377

Carapace 2.12 long, 1.60 wide. Abdomen 3.76 long, 1.22 wide. Total length, 5.9.

Colour: carapace fawn to yellow with two diffuse dark areas on lateral caput, eye region black; legs brownish yellow to orange; abdomen fawn with narrow black crenulated band around posterior edges; venter pallid. Chelicerae: small. 2R, 3P. Fang shield small with long thin bristles. Legs: of similar diameter and length. Feathery hairs on femora to metatarsi. RCH a pinhole. Spines: well developed but not strong. I: fe pv1p3d3r1; pa 1 apical bristle; ti p2v2.2.2; me v2.2. II: fe pv2p1d3r3; pa 1 apical bristle; ti p2r1v2.2.2; me p1v2.2. III: fe p3d3r3; pa 1 apical; ti p2d1r2v2.2.2; me p3r3v2.2.2. IV: fe p2d3r3; pa 1 apical; ti p2d1r2v1.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa p1d2 (distal and basal); ti p2d1r1. Abdomen: dorsal scute weak, for one third; no ventral scute; tracheal spiracle marked by sclerotised raised edge. Palp: tibial apophysis absent but with three long thick spine-like bristles on single mound on retrodorsal distal corner; bulb long pyriform with retrodistal invagination; embolic region two-pronged, each prong twisted and crossed over; sperm duct prolaterally sinuous with basal and subbasal loop.

Distribution and Habitat. Known only from rainforest at Mt Hartley, Cape Tribulation and Massey Creek, northeastern Queensland.

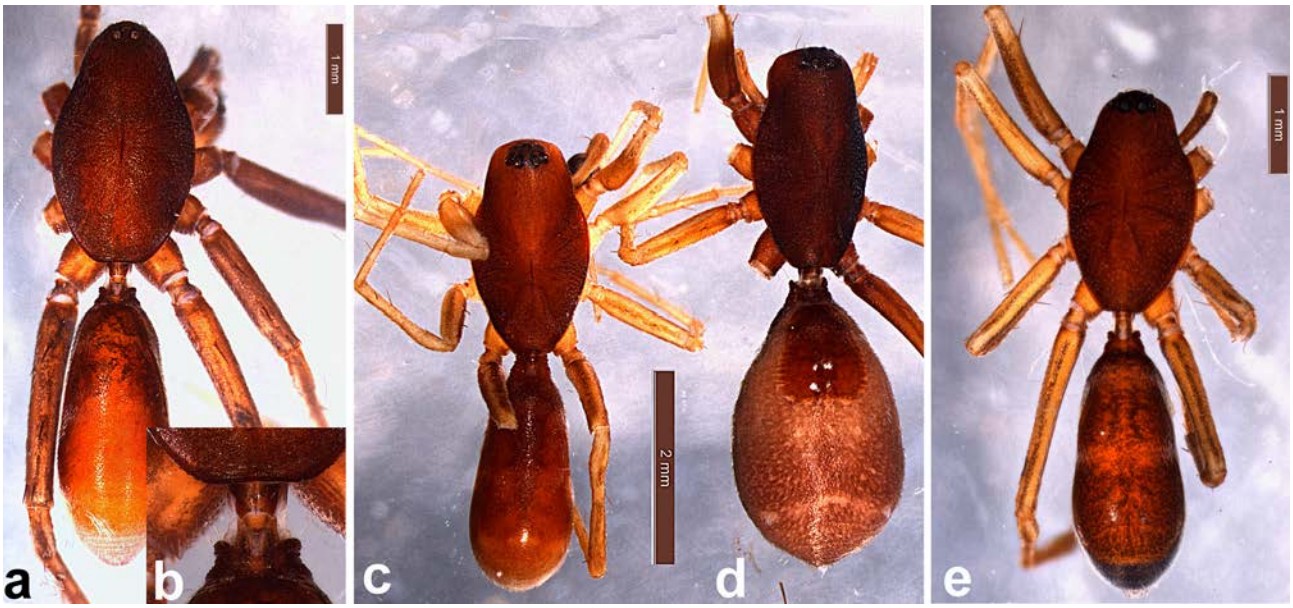


FIGURE 98. *Poecilipta janthina* species group, habitus, a–e. a, b, *P. janthina* Simon, 1896, male, QM S27949; b, pedicel, adjacent carapace and abdomen, dorsal view; c, *P. qunats* sp. nov.; d, *P. samueli* sp. nov., male.

Poecilipta Simon, 1897

Poecilipta Simon, 1897: 172; Roewer, 1955: 635. Type species by subsequent designation, *Poecilipta janthina* Simon, 1896.

Diagnosis. Differs from *Corinnomma* in that, in males, the dorsal scute is not laterally fused to the ventral scute, the tracheal scute is separate from the ventral scute, and the AME are smaller than the PME; also in *Corinnomma*, the paracymbial spine is present or absent but consistently present and well developed in *Poecilipta*. Males of *Poecilipta* differ from those of *Castoponera* Deeleman-Reinhold, 2001 in having a paracymbial spine on the male palp and the anterior face of the male abdomen sloping back not overhanging the carapace. *Poecilipta* is unusual in the Australian Castianeirinae in having legs I–III noticeably more slender (and shorter) than IV (e.g., Fig. 111b, c).

Description. Strongly ant-mimicking spiders through slender legs, slender carapace and sometimes constricted abdomen and iridescence and reflective bloom or sheen on carapace and abdomen. Carapace slender, about twice as long as wide, widest in anterior third to half. Margins smooth to distinctly serrate (e.g., Fig. 108d). Lateral profile of carapace (Fig. 3a, c–e): caput slopes downward in smooth arch from fovea, and in long moderately shallow curving line along posterior declivity; highest point at or near anterior edge of fovea; eyes set behind clypeus edge, except in *P. jilbadji* sp. nov., with caput raised behind eyes. Retrolateral face of small chelicerae smooth. Eight eyes of similar size; from above, front row recurved to straight, back row clearly procurved. Eye group occupies 0.4–0.5 of headwidth (Fig. 107f). Cuticle smooth, serrate, punctate and/or with a bloom or iridescent, often sparsely covered with small white scales. Chelicerae small (Fig. 3a, c–e) with small fang; dentition 2R, 3P. Females with small fang shield and long serrate bristles. Maxillae rounded rectanguloid with serrula. Labium longer than wide or as long as wide. Sternum trianguloid. Pedicel sclerotised with short to long collar extended anteriorly (e.g., Figs 98b, 108e). Males with dorsal scute extending for roughly the length of the abdomen, but usually without medial constriction (e.g., Fig. 98a, c–e). Females with short dorsal scute extending up to 0.4 of length (e.g., Fig. 98d), often with slight constriction or distinct humps posteriorly. Males and females with strong colour patterns in life (e.g., Fig. 99a–c) (often masked in ethanol), in abdomen and legs. Males and females with fourth leg longest (e.g., Fig. 99a), femora II–IV similar width basally and for length (e.g., Fig. 98e), femur I distinctly wider and deeper than II–IV; femur IV usually distally unmodified but in some (e.g., *P. wallacei* sp. nov. and *P. kohouti* species group), distal femora strongly constricted ventrally (e.g., as in *Iridonyssus kohouti*,

Fig. 6d); femur III also similarly constricted and sometimes more distinct than on IV. Legs slender, tibiae I and II weakly spined. Basic spination. I: fe p1d2; ti v2–2.2.2.2.2; me v2.2. II: fe p1d3; ti v2.2–v.2.2.2.2.2; me v2.2. III: fe d2r1; pa d1; ti p2v2.2; me p3r3v2.2.2. IV: fe d2; ti p2r2v2.2; me p3r3v2.2. Palp: fe d2; ti p1. Tibiae I and II with 1–5 pairs of spines ventrally; metatarsi I and II with 1–2 pairs. Patellae aspinose save for palp and leg III with 1–2 dorsal or prolateral spines. Scopula absent. Claw tufts small, dense. Paired claws dentate. Trochanters weakly notched. RCH present, often difficult to discern on pale coxae. Abdomen: males with full dorsal scute, long rectanguloid ventral scute and scute anterior to tracheal spiracle. Separate epigastric scute extends forward as collar around distal pedicel, not fused to dorsal scute. Females lack ventral scute, epigastric scute continuous to epigyne without paler, less sclerotised paragenital "brackets". Epigyne: in *P. janthina* and *P. kohouti* species groups, externally with pair of small widely separated apertures; internally, paired recurved crescentic ridges, leading straight forward to U-shaped fold leading to long dorsal duct with ends enlarged. In *P. carnarvon* species group, large copulatory fossae with narrow septum, save for *P. tinda* sp. nov., with only anterior septum; from each fossa, S-shaped copulation duct passes forward, reflexes back then forward, crossing transversely to apical lobe folding dorsally and in long narrow spermathecae with basal sphere. Male palp: tibia with ventral saddle or cylindrical; cymbium with retrolateral extensions, spines, and feathery hairs; paracymbial spine always present, distinct, often on raised process; apical cymbium narrow, straight with groove or highly twisted; bulb simple, pyriform with differing extents of incursion of subtegulum on retrolateral edge; embolus spiralled to varying extents, sometimes with unsclerotised "wing" off subapex.

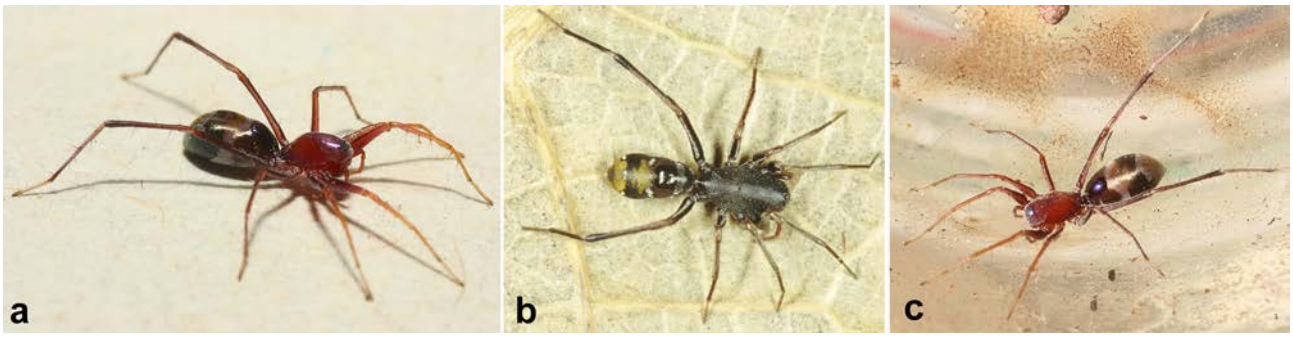


FIGURE 99. *Poecilipta* species, habitus, females: a, *P. wallacei* sp. nov.; b, *P. gloverae* sp. nov., QM S45588; c, *P. janthina* Simon, 1896. Photos, a, c: Trevor Jinks; b, Jeff Wright, QM.

Remarks. Of all of the castianeirine genera treated by Deeleman-Reinhold (2001), only in *Corinnomma* is a paracymbial spine present in the type species, *Corinnomma severum* (Thorell, 1877) (Fig. 12c), *C. rapax* Deeleman-Reinhold, 2001, *C. thorelli* Deeleman-Reinhold, 2001 and *C. javanum* Simon, 1905 (Fig. 13b, and Deeleman-Reinhold, 2001, figs 469 and 477, respectively). The paracymbial spine has not been reported for African species (Haddad, 2006a) or other southeast Asian species, so the significance of the character in *Corinnomma* is unclear.

Species boundaries. The species boundaries herein are formed from combinations of male palpal morphology and scute ornamentation or strong differences in female genitalia. Spiders with similar palpal bulbs and scutes are placed in one species but may be a complex reflected by the different bands of hair on the abdomen (in life) and patterns on legs. Two groups of species can be recognised on these characters alone: those with a straight canoe-like cymbium (*P. janthina* and *P. kohouti* groups) and one coil before the embolus tip and those with a twisted cymbium with at least two coils (*P. carnarvon* group; not to be confused with the reservoir loops) before the tip. A third group (within the first) is recognised in which the cuticle is iridescent and the embolus is like the first group.

Clearly, a number of species with similar sexual morphology have strongly different abdominal patterns and ornamentation. Equally, otherwise similar species somatically (e.g., *P. wallacei* sp. nov. and *P. gloverae* sp. nov.) may have two different carapace profiles (Fig. 3c, d).

Distribution and Habitat. Australia and New Caledonia in open forest, heath and desert, where the spiders exhibit comparatively strong visual and behavioural mimicry of ants with which they co-occur.

Species included: *Poecilipta carnarvon* sp. nov., *P. contorqua* sp. nov., *P. davidi* sp. nov., *P. elvis* sp. nov., *Corinnomma formiciforme* Rainbow, 1904, *P. kgari* sp. nov., *P. gloverae* sp. nov., *P. harveyi* sp. nov., *P. samueli* sp. nov., *P. janthina* Simon, 1896, *P. jilbadji* sp. nov., *P. kohouti* sp. nov., *P. lugubris* sp. nov., *P. mandjelia* sp. nov., *P.*

marengo sp. nov., *P. metallica* sp. nov., *P. micaelae* sp. nov., *P. qunats* sp. nov., *P. rawlinsonae* sp. nov., *P. ruthae* sp. nov., *Supunna smaragdinea* (Simon, 1909), *P. tinda* sp. nov., *P. venusta* Rainbow, 1904, *P. waldockae* sp. nov., *P. wallacei* sp. nov., *P. yambuna* sp. nov. and *P. zbigniewi* sp. nov.

Remarks. Simon (1896) inadvertently described *Poecilipta janthina* before the genus had been described; hence the date of publication of the genus was when a type species was assigned in Simon (1897a) but the date of publication of the species remains 1896.

Species Groups. Three groups are evident: *Poecilipta janthina* group, *P. kohouti* group and *P. carnarvon* group. Species are treated in the groups.

Key to *Poecilipta* species

Males (males of *P. formiciforme* sp. nov. and *P. tinda* sp. nov. unknown)

1. Cymbial tip narrow, straight (e.g., Fig. 101a), embolus tip a simple spiral, narrowing from base (e.g., Fig. 101a) . . . 2
   Cymbial tip twisted, groove narrows and widens (e.g., Fig. 116a, c–e); embolus basally wide, embolic spiral recurves back (e.g., Fig. 116a, b)*P. carnarvon* group, part . . . 17
2(1). Carapace iridescent (Fig. 111a–c) . . . *P. kohouti* group..3
   Carapace cuticle at most with bloom or sheen (Fig. 98a–d) . . . *P. janthina* group..5
3(2). Carapace and abdomen the same colour . . . 4
   Carapace copper and abdomen green (Fig. 111b) . . . *P. metallica*
4(3). Carapace and abdomen green coloured (Fig. 111a) . . . *P. kohouti*
   Carapace and abdomen copper coloured (Fig. 111c) . . . *P. ruthae*
5(2). Embolus base narrows strongly, clearly less than half width of tegulum (Figs 102a, 103b) . . . 6
   Embolus base at least half width of tegulum (Fig. 110a) . . . 12
6 (5). Embolus with apically transverse groove (Fig. 101b) or twisted (Fig. 108c) . . . 7
   Embolus apically spiralled (e.g., Figs 102b, 103b) . . . 8
7(6). Embolus tip with apically transverse groove (Fig. 101b) . . . *P. kgari*
   Embolus tip narrow, screw-like, with filamentous tip (Fig. 108c) . . . *P. waldockae*
8(6). Embolus spiral small with short tip (Fig. 102b) . . . *P. gloverae*
   Embolus spiral large, wider (Figs 100a, 105b) . . . 9
9(8). Embolus tip curves uniformly for length (Fig. 103b); insertion clearly on prolateral edge (Fig. 103b) . . . 10
   Embolus tip curves quickly near tip or not a simple spiral; insertion just off prolateral edge (Fig. 100a) . . . *P. janthina*
10(9). Basal spiral of embolus diagonal (Fig. 104d) . . . 11
   Basal spiral of embolus clearly transverse, not diagonal (Fig. 103b) . . . *P. samueli*
11(10). Last curve of embolus tip very long and slight (Fig. 109b) . . . *P. wallacei*
   Last curve of embolus tip short (Fig. 105b) . . . *P. mandjelia*, part
12(5). Embolus tip, very long, tube-like (Fig. 110a, b) . . . *P. yambuna*
   Embolus tip tapers uniformly to tip (Figs 105b, 107a) . . . 13
13(12). Distal cymbium prolaterally with ventral or lateral spine. . . . 14
   No spines prolaterally on distal cymbium . . . 16
14(13). Last spiral of embolus tip long, curved quickly at tip (Fig. 107a) . . . *P. venusta*
   Last spiral of embolus tip short, curved continuously to tip (Fig. 106 a, d) . . . 15
15(14). Embolus spiral larger (Fig. 106c); Australia. . . . *P. qunats*
   Embolus spiral small (Fig. 105a, b); New Caledonia . . . *P. mandjelia*, part
16(13). Distal cymbium a simple narrowing groove (Fig. 104a) . . . *P. lugubris*
   Distal cymbium prolaterally extends mesally (Fig. 106a) . . . *P. marengo*
17(1). Paracymbial spine on or very close to cymbial base (Figs 116d, 117e).. . . . 18
   Paracymbial spine clearly distal of cymbial base (Fig. 118c) . . . 22
18(17). Embolus tip tapers gradually (Fig. 116d) . . . 19
   Embolus tip widely flared (Fig. 117a, b). . . . *P. contorqua*
19(18). Carapace iridescent green or brown (Fig. 115c) . . . 22
   Carapace black, brown with or without bloom (Figs 115b, 124) . . . 20
20(19). Carapace brown (Fig. 115b) . . . *P. harveyi*
   Carapace black (Fig. 124); Tasmania . . . *P. zbigniewi*
21(19). Carapace iridescent green (Fig. 115c). . . . *P. smaragdinea*
   Carapace iridescent brown (Fig. 115d) . . . *P. rawlinsonae*
22(17). Three or four pairs of spines ventrally on tibiae I and II . . . 23
   Two pairs of spines ventrally on tibiae I and II. . . . 25
23(22). Basal embolus broad with several ridges, tip doubly folded (Fig. 118a–d); New South Wales . . . *P. micaelae*
   Basal embolus a smoothly curving spiral (Fig. 116a–c); Western Australia. . . . 23
24(22). Four pairs of weak spines ventrally on tibiae I. . . . *P. carnarvon*

Three pairs of strong spines ventrally on tibiae I . . . . . *P. jilbadji*
25(22). Apical spiral of embolus less than half that of lower spiral (Fig. 119a, b) . . . . . *P. elvis*
Apical spiral of embolus only a little smaller than that of lower spiral (Fig. 120a) . . . . . *P. davidi*

Females (females of *P. carnarvon* sp. nov., *P. micaelae* sp. nov., *P. harveyi* sp. nov., *P. samueli* sp. nov., *P. jilbadji* sp. nov., *P. marengo* sp. nov., *P. rawlinsonae* sp. nov. and *P. waldockae* sp. nov.) not known

1. Copulatory openings small, several diameters apart (e.g., Fig. 100c) 2
Copulatory openings large, less than one diameter apart, if separated (Fig. 123a) . . . . . *P. carnarvon* group..13
2(1). Carapace iridescent (Fig. 111a–c) 3
Carapace cuticle at most with bloom or sheen (Fig. 99a) 5
3(2). Carapace and abdomen the same colour (as in Fig. 111a, c) 4
Carapace copper and abdomen green (as in Fig. 111b) . . . . . *P. metallica*
4 (3). Spermathecae relatively shorter (Fig. 114d); carapace and abdomen dark green coloured (as in Fig. 111c) . . . . . *P. ruthae*
Spermathecae relatively longer (Fig. 112e); carapace and abdomen light green coloured (as in Fig. 111a) . . . . . *P. kohouti*
5(2). Overall shape of epigyne as wide as long or longer (Fig. 110d) 6
Overall shape of epigyne clearly wider than long (Fig. 101d) 9
6(5). At most two pairs of spines on tibia I and II . . . . . *P. yambuna*
At least three pairs of spines on tibia I and II 7
7(6). Five pairs of spines on tibia I and II, distal two pairs weak . . . . . *P. janthina*
Only three pairs of spines on tibia I and II 8
8(7). Carapace margin smooth; several long curved fang setae on cheliceral fang mound (as in *Iridonyssus kohouti*, Fig. 4d, e) . . . . . *P. wallacei*
Carapace margin finely serrate (as in *P. waldockae*, Fig. 108d); no enlarged fang setae on chelicerae fang mound . . . . . *P. venusta*, part
9(5). Carapace with large feathery scales . . . . . *P. kgari*
Carapace without feathery scales (e.g., Fig. 99a–c) 10
10(9). Carapace margin smooth . . . . . *P. formiciforme*
Carapace margin serrate or rugose (as in *P. waldockae*, Fig. 108d) 11
11(10). Copulatory duct forms two hairpin turns to head of spermatheca (Fig. 107d) 12
Copulatory duct diagonal to transverse before head of spermatheca (Fig. 102f) 17
12(11). Abdomen dorsally with large paired areas centrally (Fig. 107f); spermathecae relatively longer (Fig. 107d) . . . *P. venusta*, part
Abdomen entirely black without large paired spots (Fig. 3e); spermathecae relatively shorter (Fig. 104b) . . . . . *P. lugubris*
13(1). Epigyne consists of two more or less closed circular ridges (Figs 117g, 120b) 14
Epigyne with open ridges and complete or incomplete median scape (Figs 123a, 122d, 125d) 15
14(13). Epigynal ridges complete circles (Fig. 117g) . . . . . *P. contorqua*
Epigynal ridges incomplete circles (Fig. 120b) . . . . . *P. davidi*
15(13). Epigynal scape converges posteriorly (Fig. 123a) . . . . . *P. tinda*
Epigynal scape parallel and diverges posteriorly (Figs 122d, 125d) 16
16 (15). Carapace iridescent green (as in Fig. 115g); epigynal ridges narrow ovoid (Fig. 122d) . . . . . *P. smaragdinea*
Carapace black, not iridescent (Fig. 124); epigynal ridges circular (Fig. 125d) . . . . . *P. zbigniewi*
17(11). Copulatory duct curves entally and then ectally before diagonal portion; accessory lobe absent (Fig. 102e, f; Australia) . . . . . *P. gloverae*
Copulatory duct curves ectally before diagonal portion; accessory lobe present (Fig. 102e, f; New Caledonia) . . . *P. mandjelia*

Poecilipta janthina group

Diagnosis. Carapace and abdomen with sheen but no iridescense (Fig. 98a–d). Male embolus with slender spiralled tapering embolus (e.g., Fig. 100a); epigyne with small copulatory fossae (e.g., Fig. 100c); spermathecae M-shaped (e.g., Fig. 100d).

Species included: *Corinnomma formiciforme* Rainbow, 1904, *P. kgari* sp. nov., *P. gloverae* sp. nov., *P. samueli* sp. nov., *P. janthina* Simon, 1896, *P. lugubris* sp. nov., *P. mandjelia* sp. nov., *P. marengo* sp. nov., *P. micaelae* sp. nov., *P. qunats* sp. nov., *P. venusta* Rainbow, 1904, *P. waldockae* sp. nov., *P. wallacei* sp. nov. and *P. yambuna* sp. nov.

Poecilipta janthina Simon, 1896

(Figs 3a, 98a, b, 100a–d, 135. Map 57)

Poecilipta janthina Simon, 1896: 408; Rainbow, 1911: 254.

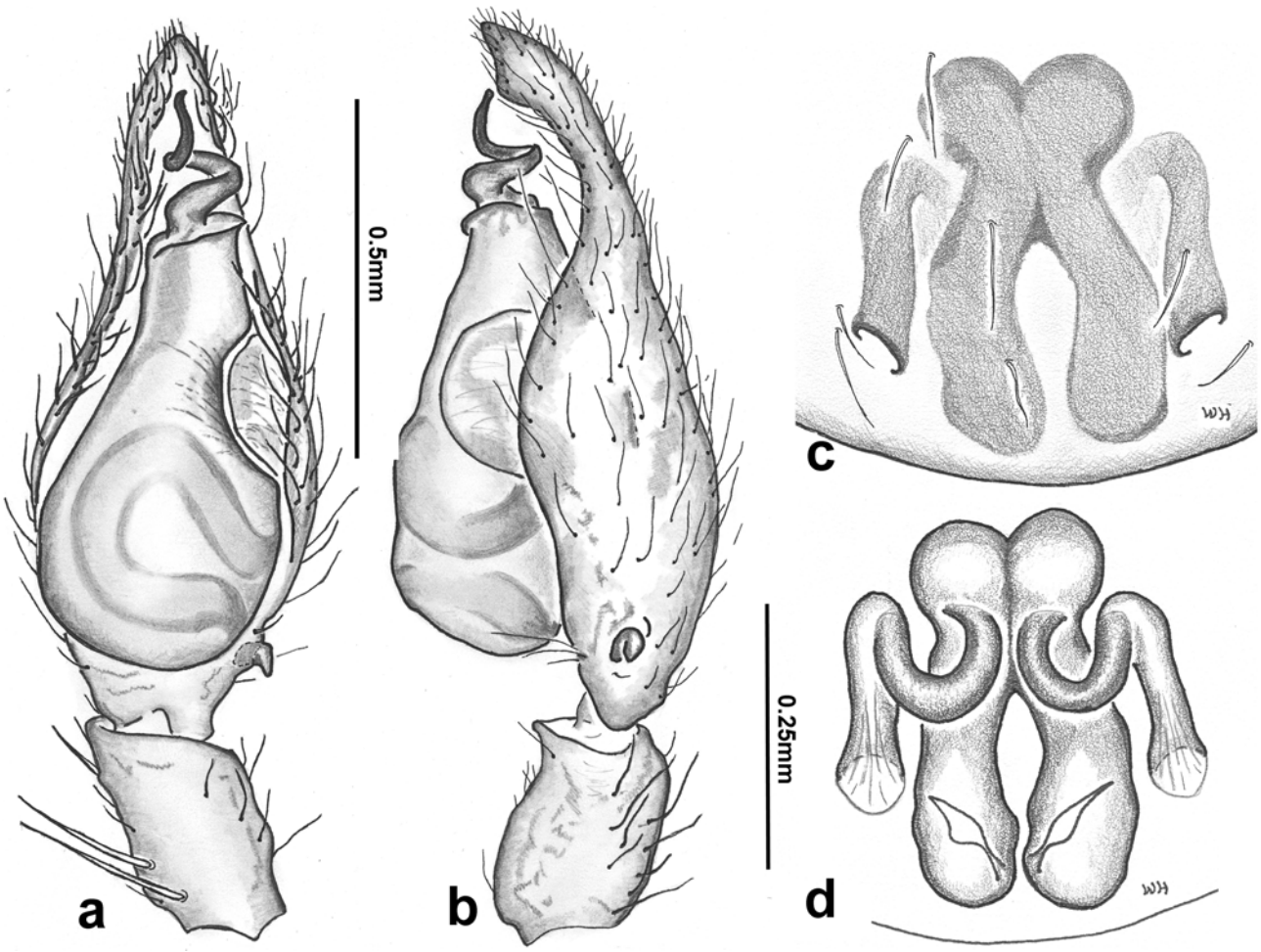


FIGURE 100. *Poecilipta janthina* Simon, 1896. Male, QM S31517; a, b, palpal tibia, bulb and cymbium, ventral view (a), and retrolateral view (b). Holotype female, MNHP-18268, c, d: epigyne, external (c), and internal (d).

Material. **Queensland**: holotype: ♀, "Cooktown", northeast Queensland, MNHN catalogue no. 18268, Boc. 1909, examined.

Other material. **Queensland**: 1♂, Davies Creek National Park, 23 Jul–26 Nov 1992, R. Raven, P. & E. Lawless, M. Shaw, QM S19845.

Diagnosis. The male differs from those of *P. gloverae* sp. nov. in the embolus being cylindrical almost through to the tip (Fig. 100a); females differ from those of *P. kgari* sp. nov. in the relatively longer spermathecae with a smaller head of spermathecae (Fig. 100d).

Description male QM S31517

Carapace 2.72 long, 1.68 wide. Abdomen 2.84 long, 1.36 wide. Total length 5.7.

Colour: carapace and chelicerae and ventral cephalothorax brown orange without dark markings; legs I and II yellow, femora I slightly darker; III, yellow with dark longitudinal stripes, IV dark brown; all tarsi pallid; abdomen dorsally dark brown with iridescent dark green sheen on scute; ventrally genital scute brown, abdominal scute paler flanks dark gray. Carapace: widest at coxae I and II, tapering strongly to narrow posterior margin only slightly wider than pedicel, anteriorly narrowing distinctly to long caput; fovea at coxae II and III, thorax slopes down from fovea and anteriorly arches gently to opposite widest point and slopes gently down to eyes and steeply across clypeus. Surface rugose with finely serrate lateral margins; fine white simple hairs around eye group. Clypeus *ca.* three AME diameters high. Fine ridge of cuticle separate below carapace above coxae. Eyes: front row slightly recurved, back clearly recurved and clearly wider behind than in front. AME *ca.* 2x ALE, ALE from in front set slightly lower; ALE, PME and PLE about same size. MOQ clearly longer than wide, slightly wider behind. Group occupies *ca.* 0.5 of headwidth. Chelicerae: small, convergent, vertical; strong inwardly directed bristle on each upper outer face; lobe indistinct; fang and furrow short; two small close teeth on retro margin; one large and one

small basal on promargin. Maxillae: apically narrowed, divergent, short, with extensive pallid zone. Labium wider than long. Sternum: shield-shaped, anteriorly truncate and ventrally indented; posteriorly only extends to edge of coxae IV; small sclerotised triangular intercoxal extensions. Pedicel broad, arrow-like, with narrow anterior "spine". Legs: IV very long; femur IV distally unmodified, longer than abdomen and *ca*. 1.6 x femur III. Feathery hairs on I–IV, not on metatarsi I and II or any tarsi; all coxae with distinct triangular basal extensions. Trochanters with broad shallow notches. Tarsi slender, not curved or distally incrassate. Scopula absent; ventral tarsi with thick curved hairs. Brush of hairs ventrolaterally on metatarsi I and II = weak preening comb. Lateral coxae III rugose, less so on IV. Trichobothria: two rows on tarsi; long in basal group on metatarsi; basal short on tibia. Spines: I: fe pv1; pa 0; ti v2.2.2; me v2.2. Tibial spines long curved, erect and overlapped longer than on metatarsi, long but contiguous. II: fe d1; pa 0; ti v2.2.2; me v2.2. III: fe p2d3; pa d1 (distal); ti p2r1v2.2.2; me p2r2v2.2.3. IV: fe p1d2r1; pa d1 (distal) ti p2r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2; pa (weak) p1d2; ti p2d1r1; no strong spines ventrally on palpal femur. Abdomen: two long anteriorly directed bristles from front face of dorsal scute, which from front to just past widest point, i.e., a small crescent over spinnerets not covered scute narrow, widens slightly then with distinct dorsal (vertical) widening, hair cover simple; cuticle finely pustulose. Ventral scute surrounds pedicel with narrow dorsal collar, medially indented with two small lateral lobes, laterally arcs down to cover booklungs and genital area; main ventral scute long, rectangular, from just behind genital plate widening slightly, then constricted and fused to tracheal spiracle. Pedicel with short collar. Palp: tibia short, with truncate flared ventral collar; cymbium long with small basal margin and truncate ventrolateral process above that; retrolateral edge intrudes over bulb. Tegulum pyriform with lateral excavation and subtegulum, apically forms corkscrew tip to embolus.

Holotype female MNHN 18268, as ♂ except as follows:

Colour: carapace, legs and abdomen yellow orange without pattern (?faded); narrow slightly darker dorsal scute extends for *ca.* one-fifth. Carapace: margin smooth, not iridescent; pile of fine hairs. Chelicerae: no enlarged fang setae. Legs: femur IV unmodified. Feathery hairs absent. Spines: erect bristles on ventral edge of femora I–III. Palp: fe: p1d2v4; pa p1d1; ti p2r1; ta v2 distal. I: fe p1 long d3; ti v2.2.2(2.2w); me v.2.2. II: fe d3; ti v2.2.2; me v2.2. III: fe p3d3r1; pa d1; ti p2r2v2.2; me p2r2v2.2.3. IV: fe p1d3r1; pa d1w; ti p2r2v2.2.2; me p2r2v.2.3. Epigyne: two small lunate ridges dorsally shield insemination duct passing forward and recurving twice before joining long central spermathecae.

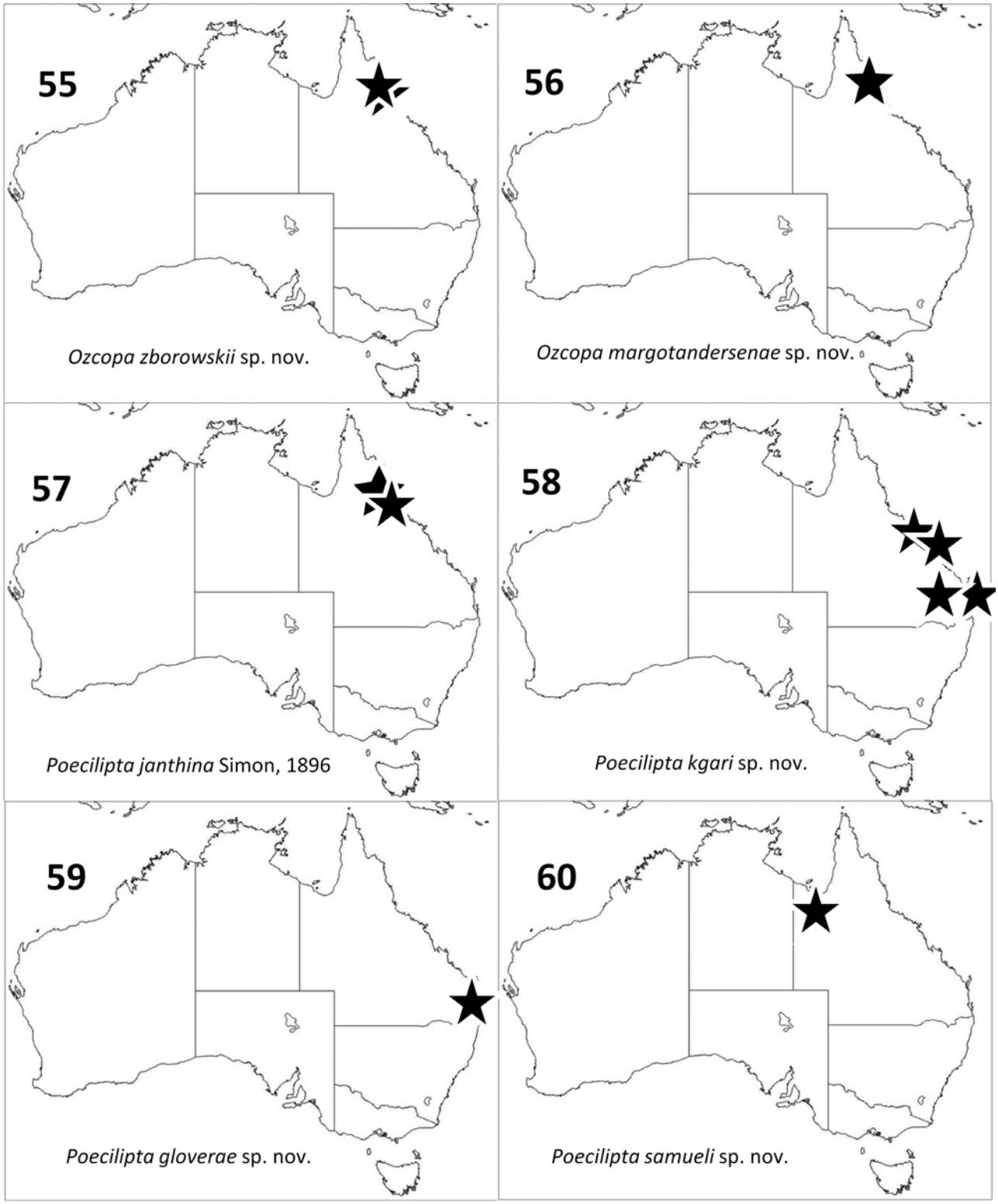
Distribution and Habitat. Known only from heathland forest west and north of Cairns, north Queensland.

Remarks. As in the descriptions of *Supunna funerea and S. versicolor*, Simon (1897a) first listed *Poecilipta* as a new genus in the Histoire Naturelle des Araignées although he had already included species in the then undescribed genus (Simon, 1896).

***Poecilipta kgari* sp. nov.**
(Fig. 101a–e. Map 58)

Material. **Queensland**: holotype ♂, Orchid Beach, Fraser I, 24°58'S, 153°19'E, heathland, pitfall, 7 Mar–1 Oct 1996, R.J. Raven, QM S31288. Paratypes: **Queensland**: allotype ♀, as for holotype, QM S39272; 1♂, as for holotype, QM S34597. Beerwah Forestry Reserve, 26°51'S, 152°57'E, heathland, pitfall, M. Glover: 1♂, 31 Oct 1990, QM S32629; 1♂, 19 Sep 1990, QM S32639; 1♂, 25 Aug 1991, QM S32201; 1♂, 25 Aug 1991, QM S32642. Boondall Wetlands (BCC1), 27°20'S, 153°04'E, Melaleuca open forest, pitfall: 1♀, 2 Dec 2003–2 Jan 2004, QM S54957; 1♀, 1–31 Mar 2004, QM S54958; 1♂, 2–29 Jan 2004, QMP, QM S63861. 1♀, Bulimba Ck, Carindale (BCC1), 27°30'S, 153°06'E, forest redgum woodland, pitfall, 30 Jan–1 Mar 2004, QMP, QM S54963. Ewan Maddock Dam, 26°48'S, 152°59'E, open forest, pitfall, M. Glover: 2♂, 22 Aug 1993–22 Mar 1994, QM S39275, QM S39274; 2♂, 30 Jan–3 May 1993, M. Glover, QM S39273, QM S32287. 1♂ 1♀, Karawatha Forest (BCC6), 27°37'S, 153°05'E, dry eucalypt woodland, pitfall, 2–30 Jan 2004, QMP, QM S54976. Proserpine, Airport Drive (site XY12), 20°29'S, 148°34'E, closed woodland, R.J. Raven: 1♂ 1♀, night collection, 8 Nov 2007, QM S86675; 1♂, 5 Nov 2007–13 Feb 2008, QM S85627; 1♂, 5 Nov 2007–13 Feb 2008, QM S85308; 1♂, Whitsunday Shire Council track (XY13), 5–11 Nov 2007, C. Burwell, QM S85851. Proserpine, track N off Airport Drive (XY11), 20°29'S, 148°33'E, closed woodland, pitfall, R.J. Raven: 1♂, 16 Feb–10 May 2007, QM S85004; 1♂, 7 Nov 2007, QM S86642; 1♂, 10 May–15 Aug 2007, R. Raven, N. Power, QM S80939. Taroom district, Boggomoss: 1♂ 1♀,

#10, 25°31'S, 150°03'E, pitfall, 11 Nov 1996–Jan 1997, G. Monteith, D. Cook, QM S36190; 1♂, No 1, 25°26'S, 150°02'E, pitfall, 12 Nov 1996–12 Jan 1997, P. Lawless, QM S36721; 1♂, #10, 25°31'S, 150°03'E, pitfall, 13 Nov 1996–Jan 1997, G. Monteith, D. Cook, QM S36226; 1♀, #12, Nathan Gorge, 25°27'S, 150°08'E, pitfall, 13 Nov 1996–Jan 1997, G. Monteith, D. Cook, QM S36346.



MAPS 55–60. Records of Australian species of *Ozcopa* gen. nov. and *Poecilipta* Simon, 1897.

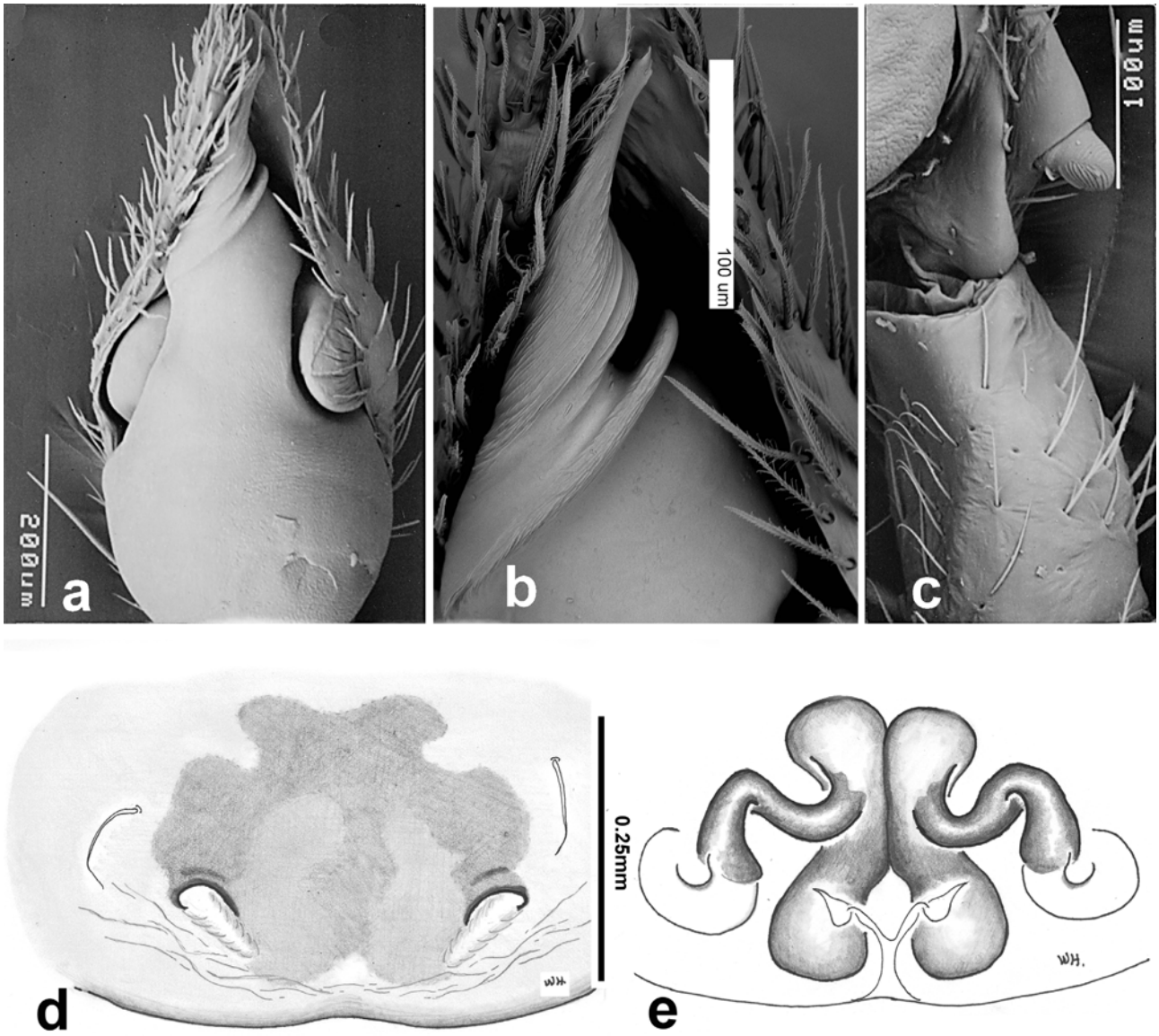


FIGURE 101. *Poecilipta kgari* sp. nov.: a–c, scanning electron micrographs, male palpal bulb, ventral view (a); b, embolus tip, ventral view; c, paracymbial spine, ventral view. Allotype female, QM S36346: epigyne, external (d), and internal (e).

Diagnosis. Males differ from those of *P. gloverae* sp. nov. in the iridescent green scales on the carapace and the unusual form of the embolus tip (Fig. 101b); females differ in the sharper fold of the upper copulatory duct (Fig. 101e).

Etymology. The species epithet is the indigenous name, k'gari, for Fraser Island and is used as a noun in apposition.

Description Holotype male QM S31288

Carapace 2.36 long, 1.40 wide. Abdomen 2.48 long, 1.16 wide. Total length 5.9.

Colour: carapace and chelicerae dark brown; carapace and anterior abdominal scute with light cover of iridescent wide green scales. Legs: coxae, femur I dark brown with pallid distal third, other legs and segments orange brown. Sternum and ventral scutes dark reddish brown. Cymbial apex pallid; abdomen dark brown, dorsally with weak fringe of white hairs around medial constriction at widest point and a cluster just above anus. Carapace: with scales (above) and feathery hairs on caput and near eyes. Margins finely serrate. Eyes: from above, front row recurved, back procurved; low edge of AME below those of ALE. Sternum centrally slightly raised, finely and coarsely pustulose. Spines: I: fe p1d3; ti v2.2w; me v2.2. II: fe d3; ti v1.1.1; me v2.2. III: fe p1d3; ti p1v2; me p2r2v2.2.3. IV: fe d3; ti p2r1v2; me p2r1v2.2.3. Palp fe d2; ti p2. Spines on I and II weaker than on palp. Legs: with feathery hairs on most segments. Scopula absent. Tibia IV thickens noticeably in distal half. Ventral tarsi with thick

setae. Femur IV with slight distal constriction. Abdomen: dorsal and genital scutes separate; dorsal scute full length, narrow but widens at midpoint. Palp: cymbium with retrobasal blunt beak-like process; bulb apically constricts then widens in deep lateral folds, with transverse diagonal ridge; distally embolus constricts basally, widens then tapers gradually. Two long bristles on tibia opposite cymbial process. Tibia with distal retrolateral disc.

Allotype female QM S39272. Like ♂ except:

Carapace 3.00, 1.56 wide. Abdomen 2.76 long, 1.44 wide. Total length 5.9. More feathery hairs on carapace. Sternum not fused to pedicel, anterior abdominal scute widely flared near pedicel and with two distinct rounded humps posteriorly and abdomen constricts strongly at end of scute; ventrally scute over genitalia and booklungs and semicircular plate anterior to spiracle. Claw present on palp. Spines: I: fe p1d1; ti v2.2.2 strong on raised bases; me v2.2. II: fe d2; ti v2.2.2 (weaker than on I); me v2.2. III: fe p2d3; ti p2r1v2.2; me p2r2v2.2.2. IV: fe d2 + distal band of 3 across ti p2r2v2.2.2; me p2r2v2.2.2. Palp: fe d2; pa p1d1 apical p2d1; ta p2 basal. Femur IV with distinct distal constriction. Epigyne: externally two round fossae. Copulatory duct wide sweeps forward to join head of spermatheca which for full length is sperm filled, passing back with two slight constrictions, and fertilisation ducts lie subdistally.

Distribution and Habitat. Known from lowland heath along east coastal Queensland.

***Poecilipta gloverae* sp. nov.**
(Figs 3d, 99b, 102a–f. Map 59)

Material. Queensland: holotype ♂, Beerwah Forestry Reserve, 26°51'S, 152°57'E, open eucalypt forest, M. Glover, QM S19528. Paratypes: **Queensland**: same data as for holotype: 1♂, QM S19489; 1♂, (A3), 18 Jul 1990, QM S39297; 1♂, 19 Sep 1990, QM S19509; 1♂, Mt Coolum (2/20), 26°34'S, 153°05'E, open forest, pitfall, Jan 1984, B.R. Jahnke, QM S29486; 1♂, Rochedale State Forest, Brisbane, 27°37'S, 153°08'E, 31 Jan 1980, V. Davies, R. Raven, QM S29524; 1♂, Mt Nebo, 27°22'S, 152°47'E, wet sclerophyll, pitfall, 19 Nov 1978, A. Rozefelds, QM S29564; 1♂, Laidley Ck, 27°31'S, 152°25'E, 31 Mar 1981, M.D. Grant, QM S29488; 1♀ (allotype), Taroom distinct, Boggomoss (site #10), 25°31'S, 153°03'E, baited flight intercept trap, 13 Nov 1996–Jan 1997, G. Monteith, D. Cook, QM S52275; 1♀. Tanah Merah, 27°40'S, 152°10'E, 27 Oct 2000, B. McDonald, QM S 45588.

Diagnosis. Males differs from those *P. wallacei* sp. nov. and *P. janthina* in the presence of an expanded flare preapically on embolus (Fig. 102b); females differ from those of *P. kgari* sp. nov. in that the spermathecae are relatively longer with a larger head (Fig. 102f).

Etymology. The species epithet honours Maureen Glover whose tireless collecting in the Beerwah region produced so many new species.

Description Holotype male QM S19528

Carapace 2.36 long, 1.44 wide. Abdomen 2.32 long, 1.16 wide. Total length 4.8.

Colour: carapace dark red brown with uniform cover of fine white hairs directed centrally; abdomen dark red brown with small pallid flecks throughout. Tuft of white hair posteriorly on abdomen and two pairs of lateral bands medially. No sheen or iridescence on carapace or abdomen. Legs with femora brown, rest yellowish. Carapace: finely rugose. Chelicerae: P2, R2; with indistinct lobe retrobasally. Sternum: lightly pustulose with steep margins but flat centrally with cover of short, fine hairs. Intercoxal extensions between II/III. Legs: large dark feathery hairs on all femora. Spines: I: fe pv1 long d2; ti v2.2; me v2.2. II: fe d2; ti v1.2; me v2.2. III: fe p2d3r2; pa d1 distal ti p2r2v1.2.2; me p2r2v2.2.2. IV: fe p2d2; pa d1 distal ti p2r1v2 distal; me p3r3v2.2.2. Palp: fe p1d2; pa p1d2 (weak) ti p1d2. Palp: bulb rotated; cymbium twisted to retrolateral side apically. Paracymbial spine a small rounded black conoid; embolic region with flare at base tapering to twisting wide embolus with flared subapical fold. Abdomen: dorsal scute for length of abdomen. Pedicel from above meets distinct anterior collar of genital scute; ventral scute extends sinuously back to include tracheal spiracle; anterior edge of genital scute thick, rounded.

Allotype female QM S52275

Carapace 2.78 long, 1.41 wide. Abdomen 3.38 long, 2.09 wide. Total length, 6.2.

Colour: carapace and coxae dark brown, without sheen or iridescence. Legs I and II distodorsally with dark brown stripe for basal two-thirds of femora, distally pallid; rest pallid save for dorsal stripe on tibiae and brown metatarsi; patellae I and II ventrally brown; femur III brown with short pallid distal bands laterally and dorsally; patella and tibia III pallid with dorsal and lateral brown stripes; tarsi all pallid; leg IV brown. Carapace: lightly

rugose also to margin; posteriorly almost glabrous; fine simple hairs anteriorly; fovea short, open with distinct prefoveal saddle; long posterior slope with distal flat zone; carapace rises gently anteriorly to fovea and slopes gradually to subvertical clypeus. Chilum two divided elongate triangles Eyes: AME lower edges above those of ALE. Chelicerae: with thick anterior bristle; *ca.* eight thick fang setae. Sternum: gradually domed with long posterior point and rebordered edges; with scattered pustules. Legs: coxae I and II ventrally smooth; white feathery hairs on femora; slight femoral constriction on III and IV. Lanceolate hairs very few (less than 10) on tibiae I and II, more on metatarsi I and II. Spines: pedal patellae aspinose. I: fe p1; ti v2.2.2; me v.2.2. II: fe d2; ti v1.1.2; me v2.2. III: fe d2; ti p2v1.2.2; me p2r1v2.2.3. IV: p1d1; ti p2r2v1.1.2; me p2r2v2.2.3. Palp: fe p1d2v6; pa p1d1; ti p2d1; ta p2. Claws: palpal claw very small, edentate. Scutes: dorsal small, for anterior third; narrow anterior saddle with white feathery hairs; distal posterior bulge. Genital encircles pedicel; ventrally with short, flared pedicel collar. Tracheal, trilobate with medial lobe directed forward. Epigyne: strongly sclerotised genital scute with no lateral weak zone; externally, a pair of short diagonal transverse bars laterally; spermathecae widely M-shaped with duct between the two folds almost transverse.

Distribution and Habitat. Known only from open dry and wet sclerophyll forest in south-eastern Queensland.

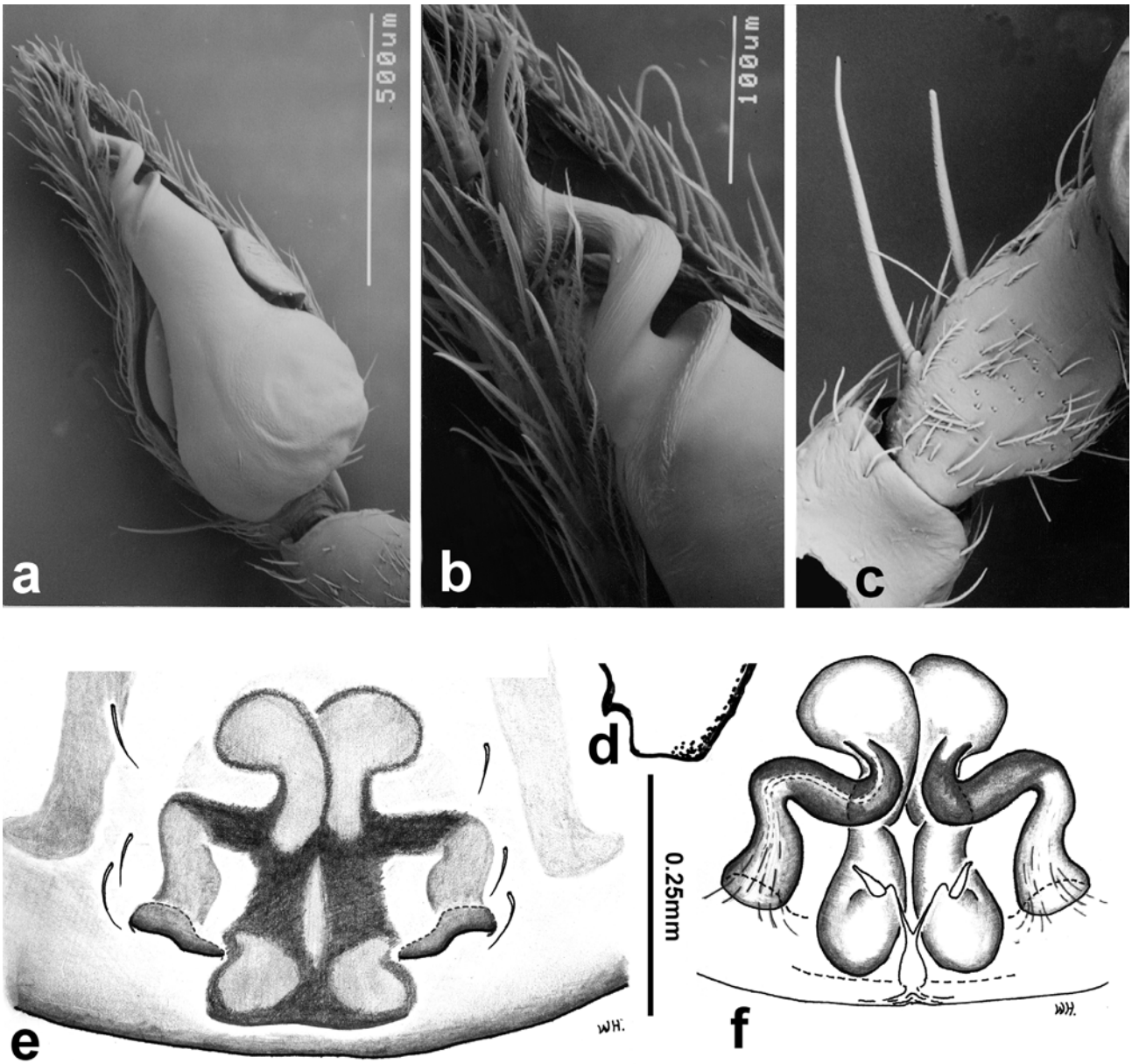


FIGURE 102. *Poecilipta gloverae* sp. nov.: a–c, scanning electron micrographs, male palpal bulb, ventral view (a); b, embolus tip, ventral view; c, tibia showing concavity, ventral view; d, paracymbial spine, ventral view. Allotype female, QM S52275: epigyne, e–f, external (e), and internal (f).

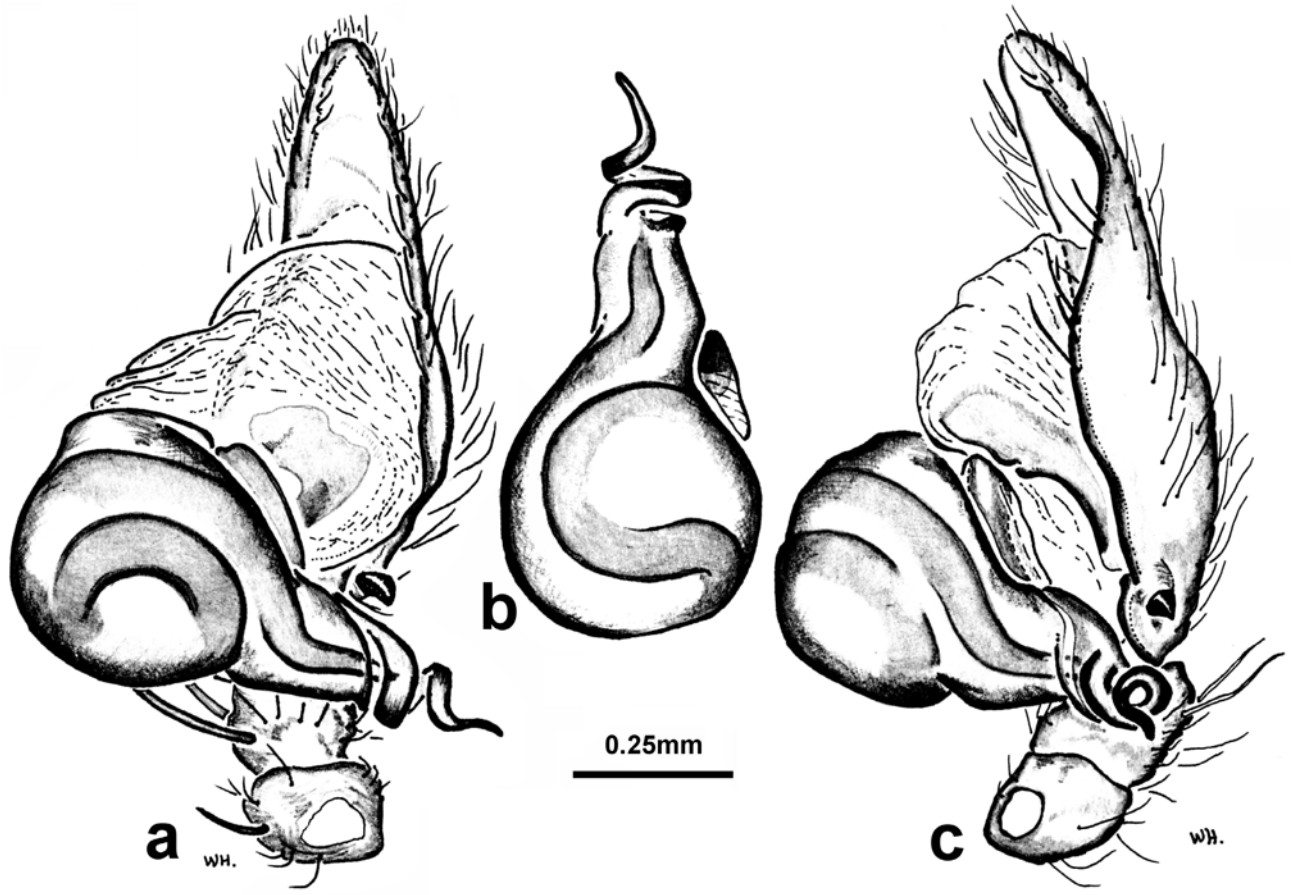


FIGURE 103. *Poecilipta samueli* sp. nov., holotype male, QM S25083: a–c, male palpal bulb, ventral view (a, b), retrolateral view (c).

***Poecilipta samueli* sp. nov.**
(Figs 98d, 103a–c. Map 60)

Material. **Queensland**: holotype ♂, Mt Isa, east, Sunset, 20°42'S, 139°30'E, grassland, pitfall, 18–20 Apr 1996, R.J. Raven, QM S25083.

Diagnosis. The male shares with *P. wallacei* sp. nov. the scales on the carapace (Fig. 98d) and differs in the shorter embolus, in which the basal spiral is transverse rather than diagonal (Fig. 103b).

Etymology. The species epithet is in honour of my son, Samuel.

Description Holotype male QM S25083

Carapace 2.34 long, 1.41 wide. Abdomen 2.62 long, 1.19 wide. Total length, 5.3.

Colour: carapace brown with light uniform pile of white feathery hairs. Femora II–IV and tibiae III and IV yellowish with dark longitudinal bands dorsally (narrow) and laterally (wide); femur I brown for basal three-quarters, patellae–tarsi I and II yellowish; metatarsi and tarsi III and IV brown; abdomen dorsally red brown with transverse bands of white feathery hairs anteriorly and at medial constriction, paler crescent around posterior edge scute, otherwise dark brown; ventrally scute red brown with lighter medial areas. Carapace and abdomen lack iridescence and bloom. Carapace: cuticle slightly rugose, with distinct wide striae; margins with spaced serrations (teeth about their height apart) posteriorly, becoming indistinct anteriorly. Sternum: long posterior tip and shallow slope, all other margins steeper with flat central plateau and few long, black bristles; with distinct intercoxal triangles. Legs: fine black feathery hairs evident only on femora; white also on tibiae and patellae III and IV. Femur IV distally unmodified. Spines: I: fe p1d2; ti v2.2.2; me v2.2. II: fe d2; ti v2.2.2; me v2.2. III: fe p1d1; pa d1; ti p2r2v2.2; me p2r2v2.2.3. IV: fe d1r1; pa d1; ti p2r2v2.2; me p3r3v2.2.3. Palp: fe d2v0; pa p1; ti p1. Abdomen. Scutes: dorsal for three-quarters of length with medial saddle and anteriorly joined to genital scute, forming long

collar; ventral bulbous, widens predistally includes tracheal scute. Palp: tibia short with ventral excavation; retrodorsally a diagonal setose ledge; cymbium slightly twisted apically; paracymbial spine short, curved, coniform; apical groove broad, separate, indistinct; bulb large; spermatic duct base fold extends width of bulb; subtegulum and retrolateral excavation large; embolus strap-like, tapering quickly to filament with same coils as *P. yambuna* but with shorter tip.

Distribution and habitat. Known only from Mt Isa, a very arid region in northwestern Queensland.

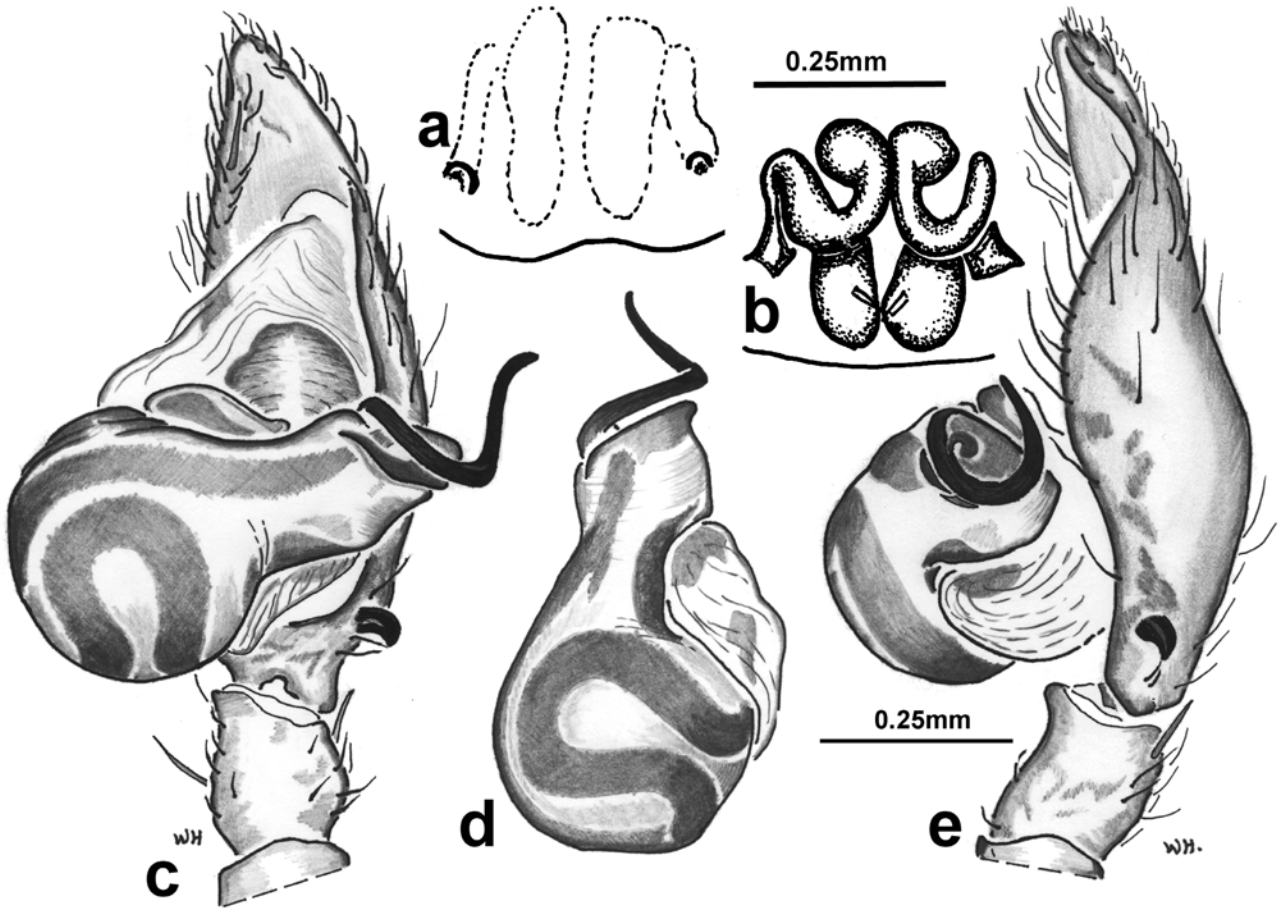


FIGURE 104. *Poecilipta lugubris* sp. nov.: a, b, allotype female, AM KS11504; holotype male, AM KS11430: c–e, male palpal tibia, cymbium and bulb, ventral view (c, d), retrolateral view (e).

***Poecilipta lugubris* sp. nov.**
(Figs 3e, 104a–e. Map 61)

Material. **New South Wales**: holotype ♂, Bondi State Forest, S of Bombala, Woodlot 1, 37°08'S, 149°05'E, 7 Jan 1981, G. Gowing *et al*., AM KS11430. Paratypes: **New South Wales:** allotype ♀, as for holotype, AM KS11504; 1♂, Bulls Ground State Forest, near Wauchope, 31°32'S, 152°38'E, dry eucalypt open forest, 2 Oct 1991, A. York, NSW Forestry, AM KS43283. **Australian Capital Territory**: 1♂, Tidbinbilla Nature Reserve, 35°27'S, 148°52'E, 3 Sep 1978, P. Ormay, AM KS13884.

Other Material: **New South Wales**: same data as holotype: 1♀, AM KS11715; 1♂, AM KS11621; 1♀, AM KS11820; 1♂, Jamieson Park, Narrabeen, 33°43'S, 151°17'E, M.R. Gray, H.M. Smith, AM KS49760.

Diagnosis. Small compact spiders in which males resemble *P. yambuna* sp. nov. in the coiled embolus, and smooth carapace margin, and differ in that *P. yambuna* sp. nov. has a small triangular paracymbial spine (Fig. 110h) rather than the long curved spine in *P. lugubris* sp. nov. Females of the two species differ in abdominal patterns.

Etymology. The species epithet alludes to the dark colour of the spiders,

Description Holotype male AM KS11430

Carapace 2.12 long, 1.32 wide. Abdomen 2.24 long, 1.12 wide. Total length 4.4.

Colour: carapace dark red brown; femora I and II brown, patellae–tarsi I and II yellowish; femora III and IV brown with yellowish stripes laterally, patellae dirty yellow, tibiae distally darker, metatarsi and tarsi orange brown. Coxa I red brown, rest yellow, around red brown sternum; abdomen dorsally with black scute for 0.8 of length with medial transverse constriction and narrow band of white hair anteriorly, medially and distally on scute. Carapace: margin a smooth ledge, cuticle lightly reticulate; long fovea extends partially onto posterior slope; fine cover of hairs around eyes. Chelicerae: with pair of medially directed bristles anteriorly. Sternum: low, domed; with coxae, pustulose. Legs: femur IV with slight predistal constriction, stronger on III; feathery hairs not evident; legs soil-encrusted; tarsi IV lack thicker setae ventrally. Spines: on tibiae I, II, weak. I: fe p1d2; ti v2.2 or v2; me v2.2. II: fe p1d3; ti v2.0; me v2.2. II: fe d2r1; pa d1; ti p2v2.2; me p0.1 r0.1 v2.2.2 IV: fe d2; ti p2r2v2.2; me p3r3v2.2. Palp: fe d2v0; ti p1. Palp: tibia ventrally excavate, cymbium distally broad; paracymbial spine a long sessile hook; bulb with long distinct pre-embolic constriction; embolus inserted prolaterally, with long tapering tip. Abdomen: petiolar collar short with definite dorsal component; dorsal scute black, smooth, for five-sixth of length, no constriction; ventral scute with concave anteromedial notch, laterally widens at *ca*. half length distally rounded.

Allotype female AM KS11504. As ♂ except:

Carapace 2.32 long, 1.36 wide. Abdomen 2.28 long, 1.40 wide. Total length 4.7. Carapace: with diagonal band of white hairs in posterior striae, weakly evident in ♂. Carapace margins slightly serrate; fovea short. Chelicerae with small cluster of thick setae on fang mound; abdomen dorsally black with red brown rectanguloid scute for anterior third, bands of white hair anteriorly over scute and behind scute; in posterior third small recurved band with two large spots of white hair laterally; large trianguloid area of white hair laterally at half length; tracheal scute low, semicircular; from above, petiolar collar short with deep notch. Spines: palp fe d2; pa p1; ti p1d1; ta p1. Three weak bristles on ventral femora.

Distribution and Habitat. Known only from north-eastern New South Wales near Wauchope to Tidbinbilla Nature Reserve in the Australian Capital Territory and east to Bondi State Forest, near Bombala.

***Poecilipta mandjelia* sp. nov.**
(Fig. 105a–f. Map 62)

Material. New Caledonia: holotype ♂, Mandjélia (Mt), 20°23'S, 164°32'E, rainforest, pitfall, Oct 1992–17 Feb 1993, R. Raven, E. Guilbert, QM S39550. Paratypes: same data as holotype: 1♀ (allotype), QM S39584; 1♀, QM S39585; 1♀, same data but 6–7 Nov 2001, L.J. Boutin, MNHN.

Diagnosis. Males differ from those of *P. yambuna* sp. nov. in the slightly larger paracymbial spine and shorter embolus tip; the band of golden hairs centrally on the dorsal scute is unique in *Poecilipta*. Females differ from those of *P. gloverae* sp. nov. in the presence of an accessory lobe on the head of the spermatheca.

Etymology. A noun in apposition from the type locality.

Description Holotype male QM S39550

Carapace 2.36 long, 1.56 wide. Abdomen 2.60 long, 1.28 wide. Total length 5.0.

Colour: carapace orange brown, eye region black, legs entirely yellow; abdomen with dark three-quarter length scute with metallic blue bloom with black band behind that and custard tip with white spot medially; scute covered with black feathery hairs and narrow band of golden hairs divides scute for its length; ventrally, sternum, coxae light orange, with red brown genital scute and broad dark ventral scute with blue bloom. Carapace: lateral profile medially flat; almost smooth with lightly serrate margin; fovea long. Eyes: of similar size; back row slightly wide, gently procurved; front row gently recurved. Chelicerae: small, dentition 2R, 2P; pair of thicker long bristles directed medially on anterior face; line of thick black bristles on fang shield. Sternum: distinct intercoxal triangles. Legs: slender; trochanters weakly asymmetrically notched on IV; feathery hairs not evident; tufts dense; preening combs and femoral constriction absent on IV. Spines: most short but strong. I and II: fe p1d3; ti v2.2.2; me v2.2. III and IV: fe p2d3r1; pa d1 distal ti p2d1r2v2.2.2; me p3r3v2.2.3. Palp: fe d2v0; pa p1d1; ti p2d1. Abdomen: dorsal scute for three-quarters of length, oval, without constriction, with uniform cover of short black bristles; collar short but not completed invaginated; ventral scute wide; sinuous laterally but roughly parallel and includes broad tracheal ridge; large closed post-epigastric sclerites. Palp: tibia without depression, cymbium apically short, triangular; bulb pyriform with short embolus gradually tapering.

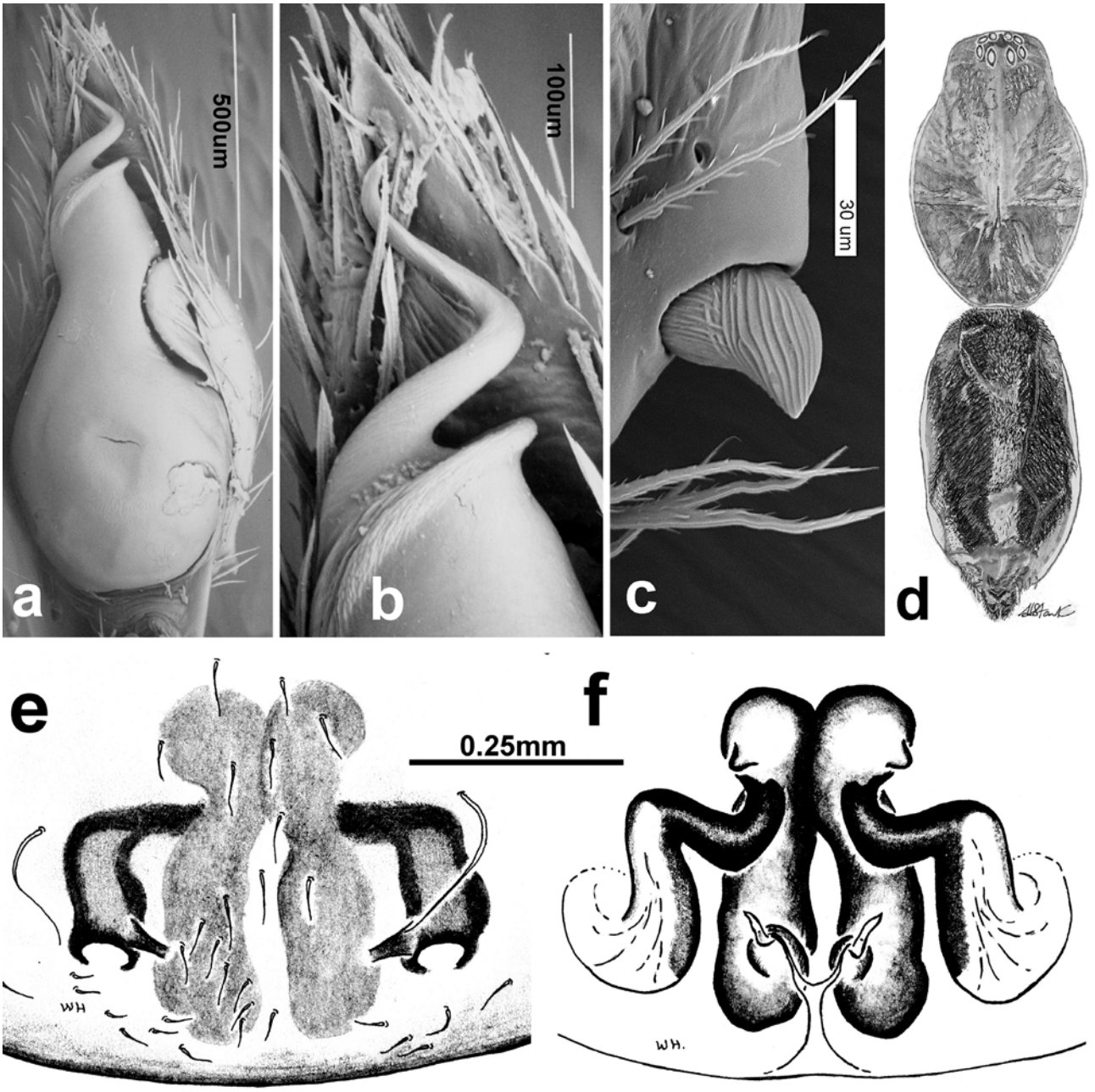


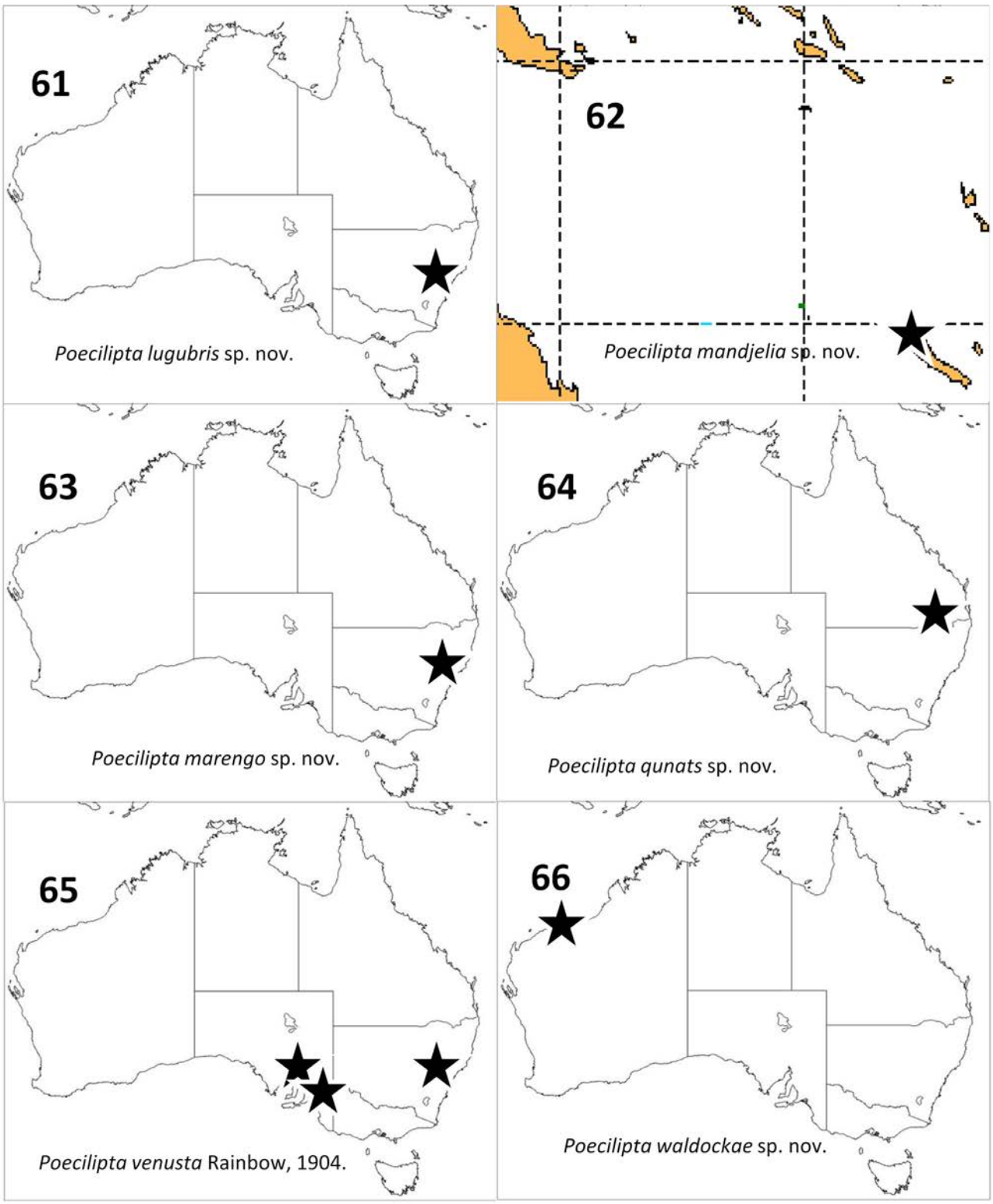
FIGURE 105. *Poecilipta mandjelia* sp. nov.: a–c, scanning electron micrographs, male palpal bulb, ventral view (a); b, embolus tip, ventral view; c, paracymbial spine, ventral view; d, habitus; e, f, female, epigyne, external (e) and internal (f) views.

Allotype female Like ♂ except:

Carapace 2.72 long, 1.92 wide. Abdomen 2.72 long, 1.60 wide. Total length 5.6.

Abdomen: boldly marked with broad yellow longitudinal bar flanked by two broad black bands to mid lateral, yellow bands then flank median brown sash. Carapace with light cover of golden feathery hairs also on legs. Chelicerae with shield of thick black fang bristles. Spines: generally stronger than in male, palp: fe p2v4; pa p1; ti p2d1; ta p2 basal; claw small. Abdomen with dorsal scute for anterior quarter; full genital scute with short collar; tracheal scute oval with broad medial ridge. Epigyne: with small fossae; accessory lobe present on small head of spermatheca.

Distribution and Habitat. Known only from Mandjélia, a mountain in north-western New Caledonia.



MAPS 61–66. Records of Australian and New Caledonian species of *Poecilipta* Simon, 1897.

***Poecilipta marengo* sp. nov.**
(Fig. 106a, b. Map 63)

Material. **New South Wales**: holotype ♂, Marengo State Forest, 2.2 km NE on Chimney Rd from Chaelundi Rd, 30°06'S, 152°24'E, G. Cassis, M. Gray, AM KS43637. Paratypes: **New South Wales**: 2♂, Beaury State Forest, Rocky Waterholes Rd, 28°32'S, 152°20'E, M. Gray, G. Cassis, AM KS36160; 1♂, Bulga State Forest, 31°37'S, 152°07'E, M. Gray, G. Cassis, AM KS40678; 1♂, Carrai State Forest, Fifes Knob Rd, 30°54'S, 152°22'E, M. Gray, G. Cassis, AM KS40138; 1♂, on Mountain Rd, 0.2 km S of junction with Kunungra Rd, 32°08'S, 151°44'E, M. Gray, G. Cassis, AM KS40687.

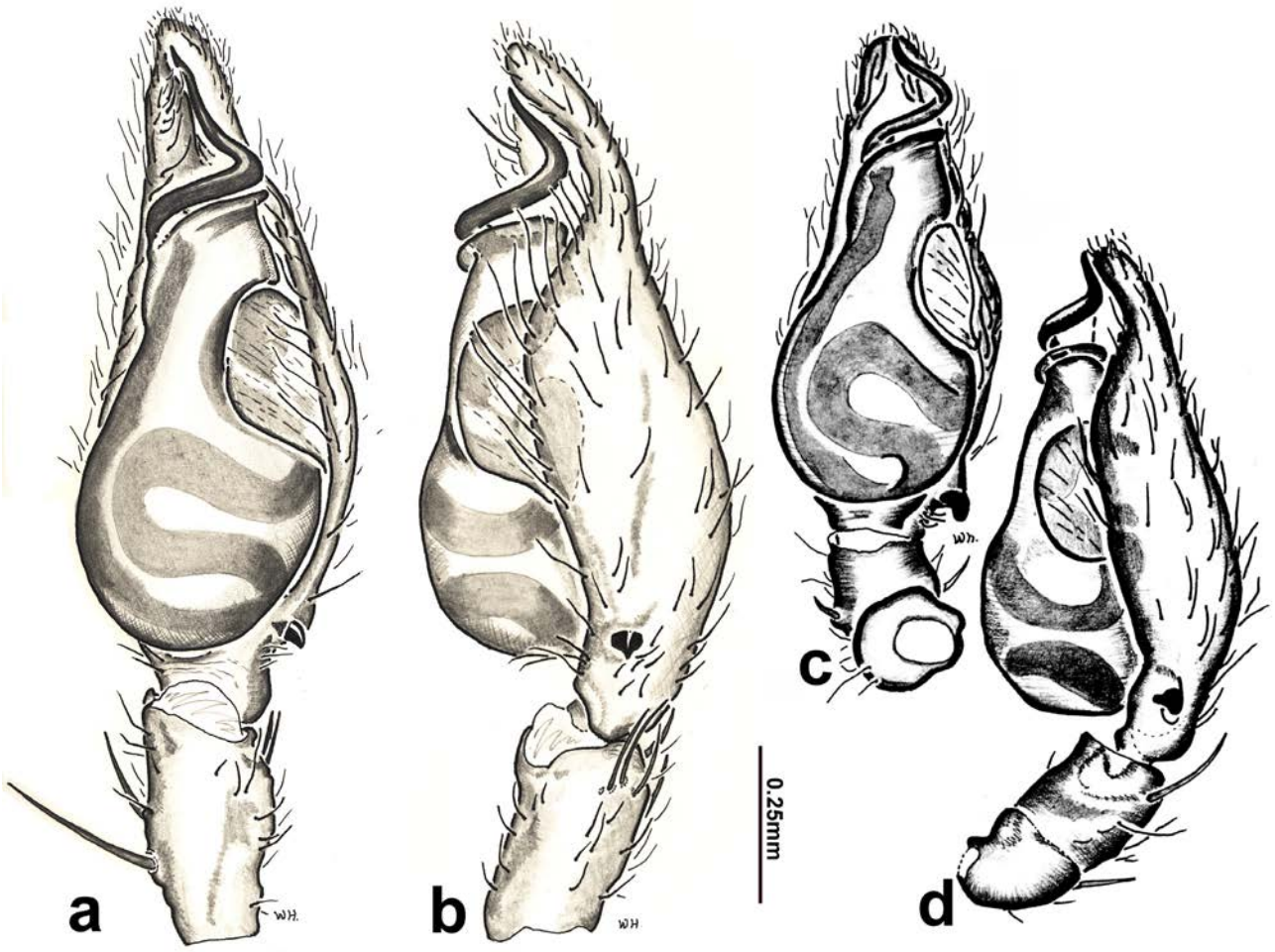


FIGURE 106. *Poecilipta* spp. nov., holotype male, palpal tibia, bulb and cymbium: a, b, *P. marengo* sp. nov., AM KS43637, ventral view (a), retrolateral view (b); c, d, *P. qunats* sp. nov., QM S39571, ventral view (c), retrolateral view (d).

Diagnosis. Males differ from those of *P. venusta* in the absence of a medial constriction in the scute, no indication of sheen or iridescence on the dorsal scute or carapace and a semicircular subtegular excavation retrolaterally and from those of *P. qunats* sp. nov. in having the prolateral edge of the distal cymbium tumid (Fig. 106a, c) rather than the narrow. Females unknown.

Etymology. A noun in apposition from the type locality.

Description. Holotype Male AM KS43637

Carapace 2.72 long, 1.68 wide. Abdomen 2.92 long, 1.36 wide. Total length 5.8.

Colour: carapace and femora yellowish with narrow dark stripe dorsally on femora; eye region dark brown; patellae I–IV, tibiae I–II, yellow with dark stripes dorsally and laterally; tibiae III, IV brown metatarsi and tarsi yellowish; abdomen dorsally with dark brown scute for 0.8 of length with tuft of white hair distally but no saddle or constriction; ventral scute long, digitiform. Carapace: light cover of fine hairs; feathery hairs not evident; margins very finely serrate; cuticle finely rugose without sheen. Eyes: region dark; all eyes small. Chelicerae: with distinct

pair of long strong medially directed bristles in upper half. Legs: only dark feathery hairs evident; femur IV unmodified. Spines: I: fe p1d3; ti v2.2.2; me v2.2. II: fe d3; ti v2.2; me v2.2. III: fe p1d3r1; ti p2r2v2.2.2; me p2r2v2.2.2. IV: fe p1d3r1; ti p2r2v2.2.4; me p2r2v2.2.2. Palp: fe d2; pa d1; ti d1; cymbium p1. Abdomen: ventral and tracheal scutes fused. Palp: tibia with two spines on low diagonal ridge retrodorsally; paracymbial spine short, truncate cone; pre-embolic ridge high, flat; tegulum deeply incised by subtegulum; embolus wide, recurves once to narrow tip; small spine prolaterally on cymbium opposite embolus tip; cymbium tip with long groove, prolateral edge of distal cymbium with tumid fold.

Distribution. Known from Marengo State Forest to northeastern New South Wales.

***Poecilipta qunats* sp. nov.**
(Figs 98c, 106c, d. Map 64)

Material. Queensland: holotype ♂, Lake Broadwater via Dalby, Site 7, 27°20'S, 151°05'E, river gums, pitfall, 16 May–23 Nov 1985, G. Thompson, QM S39571. Paratypes: **Queensland**: 1♂ as for holotype but Jan 2002, R.J. Raven, QM S65924; 1♂, (Site 7), 27°21'S, 151°06'E, river gums, pitfall, 16 May–23 Nov 1985, G. Thompson, QM S39572; 1♂, Taroom district, Boggomoss #10, 25°31'S, 150°03'E, baited flight trap, 13 Nov 1996–Jan 1997, G. Monteith, D. Cook, QM S52274.

Diagnosis. Males strongly resemble those of *P. lugubris* sp. nov. but differ in the two constrictions on the longer dorsal abdominal scute and longer petiolar collar, and also very weak spines on tibiae and metatarsi I and II; males differ from those of *P. marengo* sp. nov. in having the prolateral edge of the distal cymbium narrow (Fig. 104c) rather than the tumid fold in *P. marengo* sp. nov. (Fig. 106a). Female unknown.

Etymology. From the Queensland Naturalists Club who collected the holotype and through their yearlong survey massively increased the knowledge of the diversity of the Lake Broadwater area as well as many other areas in Queensland.

Description Holotype male QM S39571.

Carapace 2.20 long, 1.16 wide. Abdomen 2.10 long, 1.00 wide. Total length, 4.2.

Colour: carapace dark red brown with two pallid oval areas anterior to fovea. Femur I basally brown, distal quarter pallid with dorsal brown stripe; femora II–IV yellow with dorsal and lateral stripes, dorsal brown stripe down patellae and tibiae I–IV otherwise yellow brown, coxae I brown, II–IV yellow around red brown sternum; abdomen dorsally with long tear-shaped dark brown scute extending for full length; two constrictions, both weak but definite in anterior eighth of scute, terminally black, ventrally with pallid medial triangles on flanks; long red brown ventral scute with medial constriction, distally rounded. Carapace: with light uniform pile of fine white hair; fovea short, at edge of posterior slope; margin finely serrate; surface lightly rugose. Sternum: with marginal dark radial lines. Legs: large white hairs evident on femora; femur IV distally unmodified. Spines: none on patella III or ventral palpal femur; all spines on tibiae and metatarsi, slender weak bristle-like; ti v2.2; me I and II = 0. Abdomen petiolar collar long with notch slightly longer than basal portion; ventrally, narrow scute fused to tracheal scute. Palp: one tight turn to embolus with closely adjacent spiral ridge basally; femur ventrally aspinose; cymbium longer than femur; apical cymbium twisted, with short groove at tip of embolus.

Distribution and Habitat. Known only from open forest in south-eastern Queensland.

***Poecilipta venusta* Rainbow, 1904**
(Fig. 107a–f. Map 65)

Poecilipta venusta Rainbow, 1904: 333; Rainbow, 1911: 254; Roewer, 1955: 635.

Material: **New South Wales:** holotype ♀, Enfield, near Sydney, 33°52'S, 151°05'E, Dr E.P. Ramsay, October, 1904, AM KS8692.

Other Material: **New South Wales**: 1♂, Mt Lambie, 33°27'S, 149°58'E, G.S. Hunt & AM Education Volunteers, AM KS29936. **South Australia**: 1♀, 2.1 km NE Sugargum Lookout, Mt Remarkable NP, Oct 1982, G. Coombe & National parks & Wildlife Service, SAMA NN8316; 1♀, 2.1 km NE Blinman, Flinders range, 31°04'S,

138°37'E, May 1992, A.J. McArthur, SAMA NN8317. **Victoria**: 1♀, Neds Corner, 34°08'S, 141°18'E, 22—29 Nov 2011, B. Baehr, QM S91479; 2♂, same data but 34°12'S, 141°31'E, and 34°07'S, 141°17'E, QM S98190, QM S98189. **Queensland**: 1♀, Lake Broadwater, *ca.* 27°20'S, 151°05'E, during 1985, M. Bennie & QM, QM S12399.

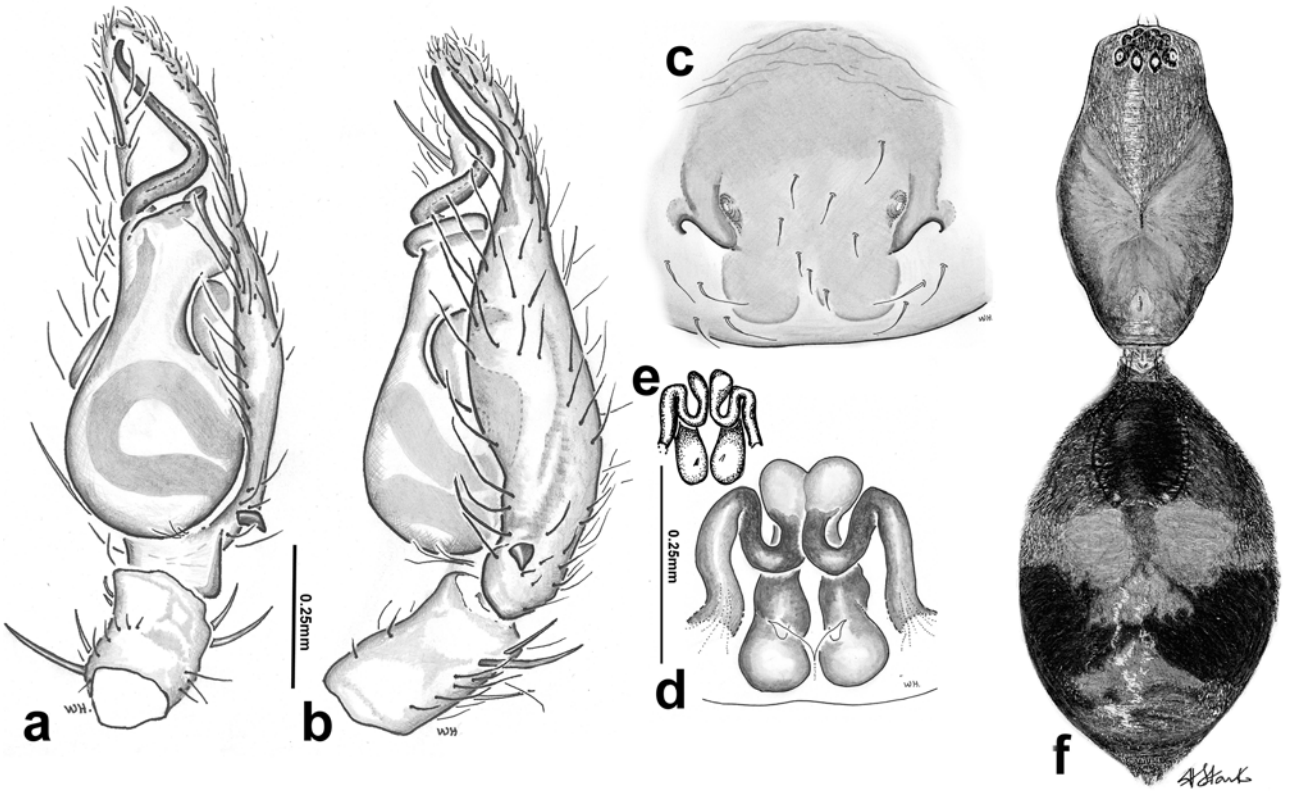


FIGURE 107. *Poecilipta venusta* Rainbow, 1904. a, b, male, AM KS29936, palpal tibia, bulb and cymbium: a, ventral view; b, retrolateral view; c–d, f, female, SAMA NN8317, epigyne (c, d): external (c), internal (d); e, holotype, AM KS8692, epigyne internal; f, habitus.

Diagnosis. Males differ from those of *P. qunats* sp. nov. in the terminal portion of the embolus being relatively longer than the diagonal basal portion. Females differ from those of *P. lugubris* sp. nov. in the large paired pallid areas on the dorsal abdomen (Fig. 107f), the slightly longer spermathecae (Fig. 107d) and the spines ventrally on tibia I that are strong but weak on tibia II, whereas in *P. lugubris* sp. nov. they are weak both on tibia I and II.

Description Male AM KS29936

Carapace 2.40 long, 1.44 wide. Abdomen 2.48 long, 1.12 wide. Total length 5.0.

Colour: carapace orange brown with bluish bloom with fine brown lines radially and brown V in front of fovea; dorsal abdominal scute for five-sixths of length and bipartite: anterior third appears higher and thicker, shiny, smooth dark brown with aquamarine blue bloom, posterior portion lighter brown with ferrous bloom; egs I and II and tarsi III and IV yellow; femora and tibiae III and IV yellow with long brown stripes dorsally and laterally; metatarsi III and IV brown; no pallid zones laterally on abdomen. Carapace: shiny, smooth with bluish bloom, uniform light cover of fine hair; long fovea at edge of posterior slope. Legs: tarsi with thick setae ventrally; feathery hairs on femora; femur IV unmodified. Spines: long and strong on tibiae and metatarsi I and II. I: fe p1d3; ti v2.2.2; me v2.2. II: fe d3; ti v2.2.2; me v2.2. III: fe d3r1; pa d1; ti p2r2v2.2; me p2r2v2.2 +dw4. IV: fe p1d3r1; pa d1; ti p2d2v2.2; me p2r2v2.2.3. Palp: fe d2; pa d1; ti p1d2, plus cymbium ventrally with spine beside embolus prolaterally. Abdomen: dorsal scute, separate from epigastric scute, for seven-eighths of length with median constriction, with pair of long anteriorly directed bristles on front face and light cover of white feathery hairs; petiolar collar short but with dorsal extent. Palp: embolus basally wide, twists back into groove and tapers to tip; retrolateral subtegular excavation small, ovoid; paracymbial spine short, beak-like.

Holotype female AM KS8692

Colour: cuticle translucent, presumably through long preservation; carapace dark red brown; femora darker than patellae-tibiae; abdomen with oval brown dorsal scute for one-eighth to one-sixth of length; otherwise pallid with pair of trianguloid dark marks laterally at half length and pointing to centre line; laterally marks form broad diagonal sash from dorsal anteriorly to ventral posteriorly. Carapace: scales absent; fine widely spaced serration on margin. Spines: on tibia I and metatarsi I and II all long. I: fe p1d3; pa 0; ti v2.2.2; me v2.2. II: fe d3; pa 0; ti v2.2.2; me v2.2. III: fe p2d3; pa d1w; ti p2r2v2.2; me p3r3v2.2.2. IV: fe d3r1; pa d1w; ti p2r2v2.2.2; me p3r3v2.2.2. Palp: fe d2; pa p1d2; ti p2d2; ta p1v2. Abdomen: without lateral constriction or sudden widening. Epigyne: externally with recurved ridges over copulatory fossae; copulatory ducts straight anteriorly for half length of major duct, form U-loop at about two-thirds of CD length and head of spermathecae small and pass back touching and then ectally to major lobe.

Distribution and Habitat. Known from Sydney, and western NSW, northwestern Victoria, adjacent northeastern South Australia and southwestern Queensland.

***Poecilipta waldockae* sp. nov.**
(Fig. 108a–e. Map 66)

Material. Western Australia: holotype ♂, Woodstock Stn, 21°36'40"S, 119°02'23"E, 10–17 Feb 1989, J.M. Waldock, R. Howe, J. Dell, WAM 98/1661.

Diagnosis. Differs from other known Western Australian species of *Poecilipta* in the almost untwisted cymbial tip (Fig. 108b, c), the very narrow gap of soft cuticle separating the dorsal and genital abdominal scutes (Fig. 108d, e), and the narrowly twisted embolus tip and the long shallow posterior slope of the carapace. The male differs from those of *P. kgari* in the cork-screw embolus tip (Fig. 108b, c). Female unknown.

Etymology. The species epithet is in honour of Julianne Waldock, of the Western Australian Museum, in recognition of her passion for conservation of the land's flora and fauna.

Description Holotype male WAM 98/1661

Carapace 2.12 long, 1.31 wide. Abdomen 2.75 long, 1.25 wide. Total length 5.0.

Colour: carapace matt orange brown without bloom. Dark brown dorsal abdominal scute for length, with similar cuticle but short dark setae on raised bases; two narrow transverse bands of white hair anteriorly and near midpoint. Basal femora orange brown, otherwise legs uniformly yellow brown. Carapace: lines of short white hair on small dark raised bases, cuticle lightly pustulose with steep ledge above distinctly serrate margin. Caput arched, the highest point; fovea set just behind centre and anterior to long gentle posterior slope. Eyes: of back row much larger than those of front. PME *ca*. one diameter apart. Chelicerae: fangs short; dentition 2R, 2P. Sternum: low, arched with rebordered edge and *ca*. 20 long submarginal bristles. Wide intercoxal triangles between coxae II and III. Legs: feathery hairs white, as light cover, on dorsal coxae and trochanters, black on femora to metatarsi; precoxal strips narrow between and above III and IV; tarsi ventrally with short thick setae; distinct subdistal constriction on femora III, less so on IV; coxae and basal femora pustulose. Spines: I: fe pv1d3; ti v2.2.2; me v2.2. II: fe d4; ti v2.2.2; me v2.2. III: fe p1d3r1; pa d1; ti p2r2v2.2.2; me p3r3v2.2.2. IV: fe p1d4r1; ti p2r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2; pa p1d1; ti p2. Palp: cymbium with slight apical twist, paracymbial spine small, conical, on small base, subtegular retrolateral indent small, embolic division with two small apical twists. Abdomen: scutes: dorsal and genital with fine pallid suture line (*cf. Corinnomma*), with pair of long horizontal setae directed forward, genital anterodorsally concave; ventral scute wide, laterally convex, posteriorly widest fused to tracheal scute; petiolar collar long with strong distal ridge; post-epigastric sclerites long curved, rounded.

Distribution. Known only from Woodstock Station, north-west Western Australia.

Remarks. *P. waldockae* is unusual among the Western Australian *Poecilipta* treated here in the tightly, rather than widely, spiralled embolus tip but along with the almost fused dorsal and ventral scutes and the long sloping profile of the posterior carapace, it sits uncomfortably both in the *P. carnarvon* species group and the *P. janthina* species group; based on the embolus tip, it is included in the latter.

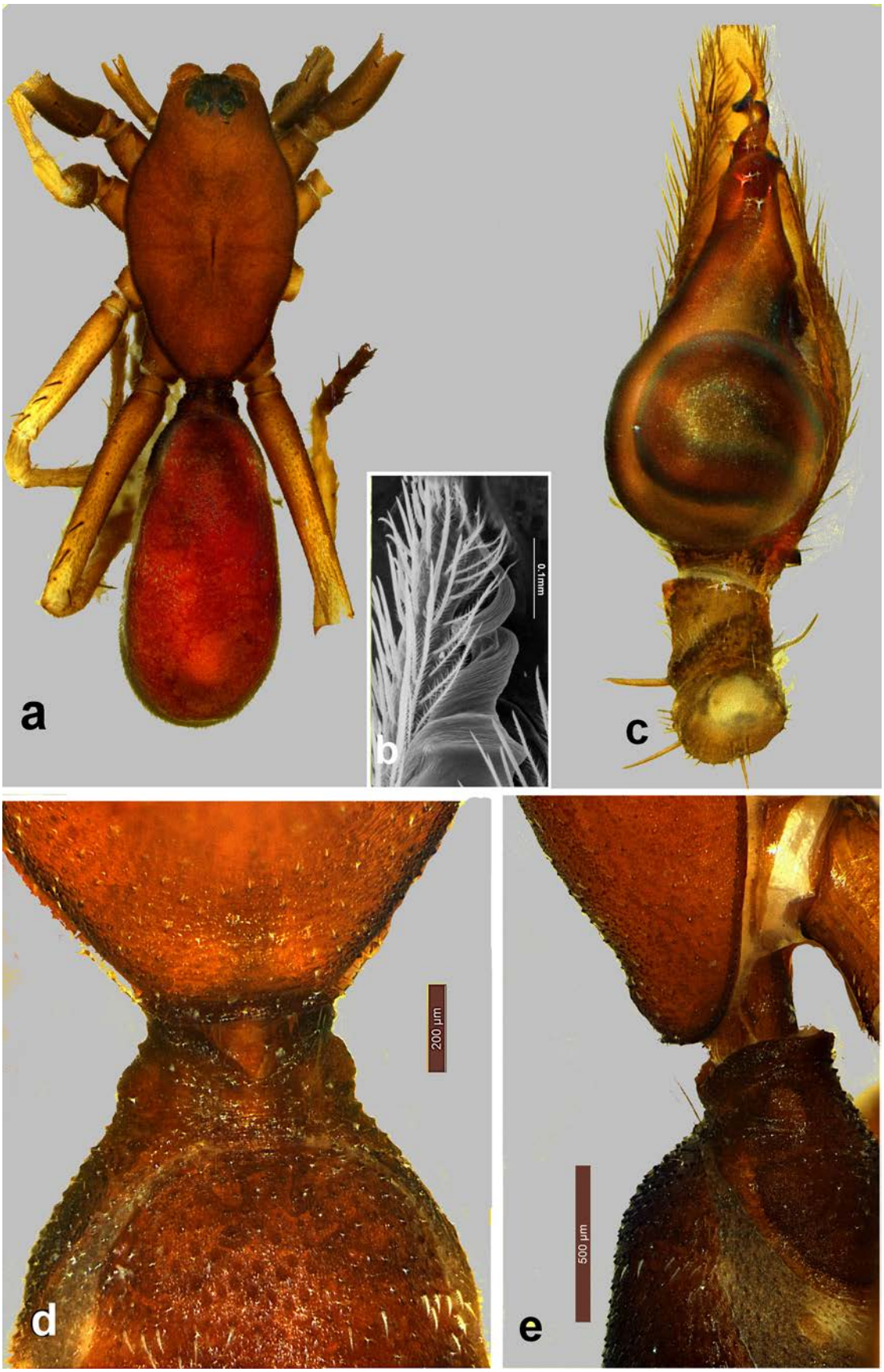


FIGURE 108. *Poecilipta waldockae* sp. nov., holotype male, WAM 98/1661: a, habitus; b, embolus tip, scanning electron micrograph; c, palpal patella to cymbium, ventral view; d, e, carapace, pedicel and abdomen, dorsal (d) and lateral (e) views.

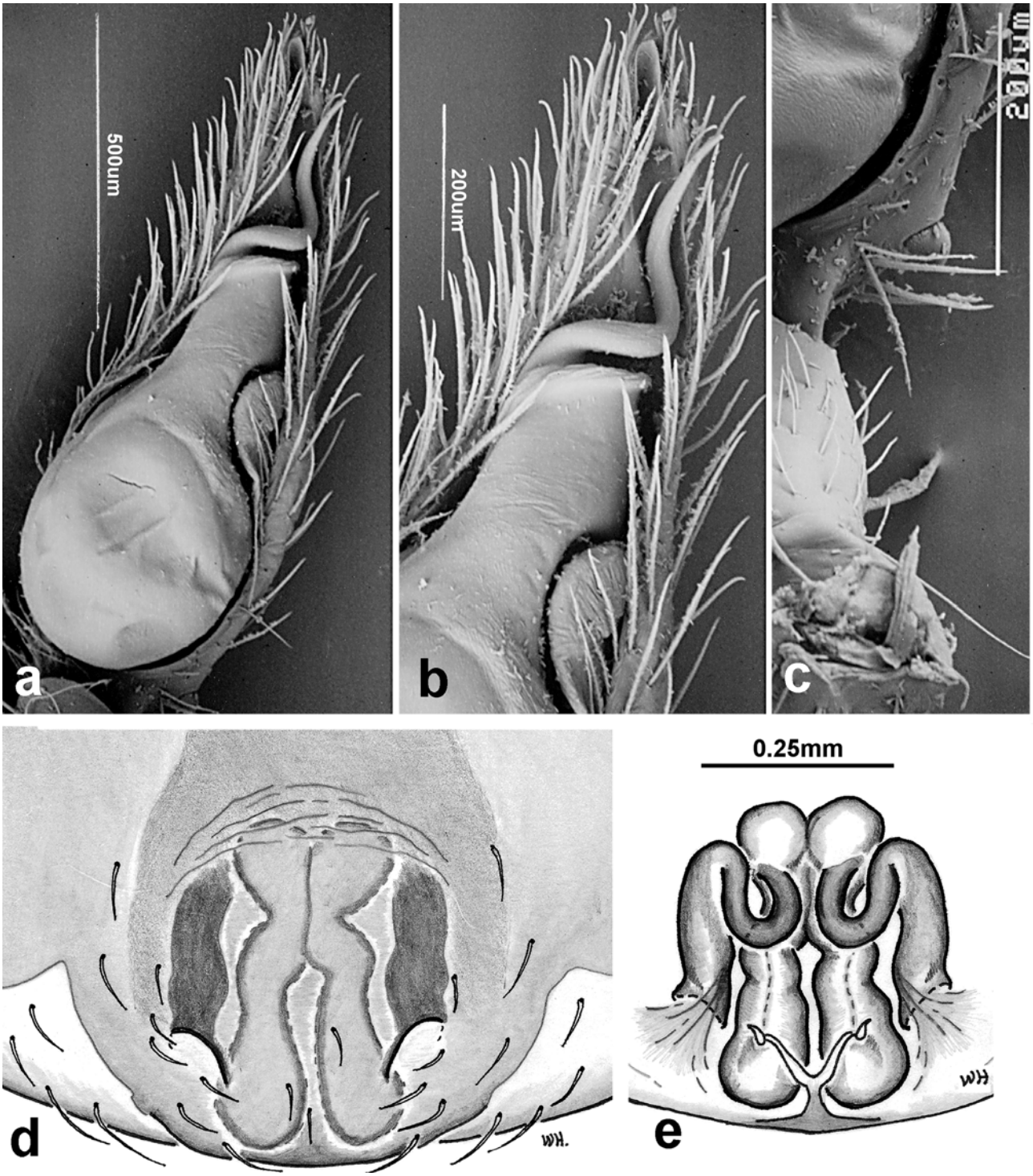


FIGURE 109. *Poecilipta wallacei* sp. nov.: a–c, scanning electron micrographs, male palpal bulb, ventral view (a); b, embolus tip, ventral view; c, paracymbial spine, ventral view. Allotype female, QM S52271: epigyne, d, e, external (d), and internal (e).

***Poecilipta wallacei* sp. nov.**
(Figs 3c, 109a–e. Map 67)

Material: **Queensland**: holotype ♂, Nob Ck, 22°52'S, 150°37'E, pitfall, Jan 1994, D. Wallace, Healy, QM S32637. Paratypes: **Queensland**: (allotype) 1♀, Nipping Gully (Site 4), 25°40'S, 151°26'E, open forest, pitfall, 18 Dec 1998–25 Jan 1999, G. Monteith, C. Gough, QM S52271; 1♂, Beerwah Forestry Reserve (C4), 26°51'S, 152°57'E,

27 Feb 1991, M. Glover, QM S39279; 1♂, Braemar SF, 27°13'S, 150°50'E, pitfall, 4–8 Feb 1980, G. & S. Monteith, QM S29491; 1♂, Brookfield, Gold Ck Rd, 27°30'S, 152°55'E, litter, 23 Jun 1980, R. Raven, V. Davies, QM S29518; 1♂, Bushley Stn (DW12), 23°32'S, 150°15'E, open forest, pitfall, 21 Mar–22 Oct 1990, D. Wallace, R. Raven, K. Williams, QM S39278; 1♂, Lawes, 15 Feb 1978, S. & I. Barrett, QM S39535; 1♂, Mt Mee, via Samford, 27°05'S, 152°47'E, rainforest, 26 Apr 1988, R. Raven, J. Gallon, QM S39466; 1♂ 1♀, Pheasant Ck, 23°45'S, 150°09'E, ironbark woodland, pitfall, Mar 1993, D. Wallace, F. Armstrong, QM S43785. **Western Australia**: 4♂, Cocanarup Timber Reserve, 33°38'S, 119°54'E, salmon gum woodland, Nov. 1993, G. Harold.

Non-type Material: **Northern Territory**: 1♂, Barkly Highway, *ca.* 40 km E Camooweal (site 2), 19°58'S, 138°29'E, pitfall, 5–7 Apr 1997, R.J. Raven, QM S40562.

Diagnosis. Males differs from those of *P. janthina* by one less whorl on the embolus tip and females by the relatively closer (3 diameters apart rather than 6) CO. The species differs from *P. kgari* sp. nov. in the posterior eye row set further back but lacking scales on the cephalothorax and abdomen, and by the orange cephalothorax and brown abdomen. Differs from *P. venusta* in the smooth carapace edge.

Etymology. In honour of the late Mr Doug Wallace, OAM (1923–2012) who long freely provided central Queensland with arachnological reassurance, talks and large spider displays at the Rockhampton Botanical Gardens. Doug substantially helped and supported the Queensland Museum's Pitfall Survey from 1990–1992, from which many new spider species in the families Barychelidae, Dipluridae, Lamponidae, Prodidomidae and Oonopidae have been described.

Description Holotype male QM S32637

Carapace 3.08 long, 1.64 wide. Abdomen 3.24 long, 1.48 wide. Total length 6.4.

Colour: carapace brown orange with darker margins, chelicerae, sternum and legs brown orange; abdomen dark brown with dark plum blue sheen; dorsal scute for *ca.* 0.9, with saddle at half length; ventral scute laterally parallel-sided, posteriorly indented. Basal half of femora I and II dark brown, rest yellow; femur III brown, rest orange; femur IV dark brown, patella to metatarsus light brown; tarsi all pallid. Carapace: with uniform cover of white hairs. Chelicerae: with strong bristles on dorsal face, weaker and medially directed more on ventral half. Sternum: Smooth, low with few long submarginal bristles. Legs: feathery hairs absent; femoral bases darker than rest of leg; no strong black setae ventrally on tarsi; femur IV unmodified. Spines: all strong. I: fe p1d3; ti v2.2.2; me v2.2. II: fe p1d3; ti v2.2; me v2.2. III: fe p2d3r2; pa p1 apical ti p2r2v2.2; me p3r1v2.1.1.3. IV: fe p1d3r2; pa p1 apical ti p2r1v1.1.1.1; me p2r1v2.1 v2.1.2.3. Palp: fe p1d2v0; pa p1d1.1; ti p2. Abdomen: pedicel collar very short; ventral scute very long, narrow and includes tracheal scute. Palp: paracymbial spine beak-like; embolus long, spiralled from prolateral across to retrolateral and to long slightly curved tip.

Allotype Female QM S52271

Carapace 3.16 long, 1.48 wide. Abdomen 3.60 long, 2.00 wide. Total length, 6.8.

Colour: carapace orange brown with blue bloom; sternum, coxae, and femora orange brown; patellae–tarsi I and II yellowish; III and IV brown with pallid tarsi; abdomen dorsally with small brown smooth long rectangular scute with blue bloom, with broad transverse band, deepest dorsally behind scute, and pallid central band meets posterior zone forming two contiguous pointed ovoid areas. Femora III and IV with paler longitudinal stripes. Carapace: orange peel surface with smooth margins; notable fine white hairs (not feathery) on caput and lines of hair in posterior striae, only scattered hairs elsewhere; long black bristle anteriorly directed behind each PLE; fovea long; posterior slope without basal plateau; prefoveal profile rounded, distinctly sloped down to eyes. Clypeus subvertical. Carapace margin smooth with narrow rebordered edge. Eyes: lower edge of AME in line with or below that of ALE. Chelicerae: strong bristle cover; 8–10 thick fang setae. Sternum: smooth; with blue bloom; low, domed; margins not thickened; *ca.* 20 long thick, erect bristles around submargin; short posteriorly; very subtle intercoxal points. Legs: black feathery hairs on femora; femora III and IV unmodified; thick setae ventrally on tarsi. 4–6 long erect thicker bristles ventrally off all coxae; two basally on femur III; 10–15 in basal half of femora I and II. Lanceolate setae ventrally on distal tibiae, and for full length of metatarsi and tarsi I and II and tarsi III and IV. Palpal claw bare. Spines, all strong: I: fe p1d3; pa 0; ti v2.2.2; me v2.2. II: fe d3; rest as for I. III: fe p2d3r1; pa d1; ti p2r2v.2; me p2r1v2.2.3. IV: fe p1d3r1; pa d1; ti p2r2v2.2.2; me p3r3v2.2.3. Palp: fe p1d2v4; pa p1d2; ti p2d1; ta p2. Scutes: dorsal, longitudinal, rectangular with irregular invaginated end, widely separated from genital; genital with wide, roughly triangular unsclerotised shallow area from epigyne edge to inner booklung edge; post-epigastric sclerites absent; ventrally, anterior collar deeply concave, widely separated dorsally by small separate scute; tracheal, roughly square, hirsute, weak. Epigyne: long sausage-like spermathecae evident with pair of small

fossae *ca.* one-third from base; entirely sclerotised to pedicel, save for broad unsclerotised invagination on book-lung margin.

Distribution and Habitat. Known from open forest through eastern Queensland, Northern Territory and Western Australia.

***Poecilipta yambuna* sp. nov.**
(Fig. 110a–e, h. Map 68)

Material: **Victoria:** holotype ♂,Brooms Rd, 7.5 km NE of Yambuna 36°06'S, 145°05'E, pitfall traps, 17–22 Jan 1994, G.Milledge, MV K4403. Paratype: **Victoria:** allotype 1♀, 36°09'S, 145°01'E, State Forest, 1 km SE of Yambuna, pitfall traps, 17–22 Jan 1994, G. Milledge, MV K6985.

Diagnosis. Males are unique in the genus in the very long terminal extent of the embolus (Fig. 110a). Females are unusual amongst the *P. janthina* species group in having only two pairs of spines on ventral tibiae I and II.

Etymology. The species epithet is a noun in apposition from the type locality.

Description Holotype Male MV K4403

Carapace 1.60 long, 1.00 wide. Abdomen 1.64 long, 0.88 wide. Total length 3.4.

Colour: carapace dark brown with irregular paler area pre-foveally; chelicerae mottled light brown, coxae yellow brown; femora red brown, patellae–tarsi pallid yellow with faint darker areas; abdomen dark brown dorsally and lighter ventrally on scute; sternum dark brown. Carapace: broad white feathery hairs on interstrial ridges, otherwise light cover of fine hairs. Chelicerae: small, two teeth set close on retromargin near fang base, one low; none evident on promargin. Sternum: domed, margins without strong triangular extensions; coxae close to margin, posteriorly rounded. Legs: feathery hairs on femora and tibiae; scopula absent; trochanters not notched; femora III and IV distally with slight constriction. Spines: I: fe p1d3; ti v2 basal; me v2 basal. II: fe p1d3; ti v0; me v2.2. III: fe d3; ti p1v1; me p2r2v1.2.2. IV: fe d2; ti p1v1.1; me p2d1r2v1.1. Palp: fe 0; ti p2. Abdomen: scutes: dorsal, rounded, ovoid for 0.9 of length; genital scute not strongly emarginate anteriorly; ventral rounded rectanguloid from genital groove to tracheal spiracle. Palp: tibia with low longitudinal ridge retroventrally; cymbium long, twisted to form distinct diagonal groove and anterior cone divided; small beak-like paracymbial spine; embolus a broad, single spiral.

Allotype female MV K6985: as for ♂ except:

Carapace 2.60 long, 1.48 wide. Abdomen 2.84 long, 1.72 wide. Total length 5.9.

Colour: abdomen dorsally dark brown, small rectangular entirely dorsal scute lighter, behind scute lighter, three tufts of white hair across at posterior two thirds; venter entirely dark brown; femora dark brown, rest light brown, tarsi paler; carapace with white feathery hairs along posterior striae and lightly over dorsum. Legs: small feathery hairs on lateral femora. Chelicerae: fang shield distinct, rounded, with cluster of thick brown vertical bristles. Spines: small, obscure against dark cuticle. I: fe p1d2; ti v1.2; me v2.2. II: fe p1d2; ti v1; me v1.2. III: fe d2; ti p2r1v1; me p2r2v1.2.3. IV: fe d3; ti p2r2r1v1.1.1; me p2v3v2.2.3. Palp: fe p1d1; pa p1; ti p2 (basal); ta v3 distal. Palp: claw short, curved, dentate. Epigyne: CO small *ca*. four diameters apart; genital scute surrounds pedicel completely, with tracheal spiracle on back edge of small semicircular scute thick anterior margin. Dorsal scute small, oval, in anterior quarter; no ventral scute.

Distribution. Known only from the Yambuna area, near the northern border of Victoria.

***Poecilipta formiciforme* (Rainbow, 1904), new combination**
(Fig. 110f, g. Map 69)

Corinnomma formiciforme Rainbow, 1904: 335; Rainbow, 1911: 254; Roewer, 1955: 620.

Material. **New South Wales**: holotype ♀, Enfield, near Sydney [33°54'S, 151°05'E], Dr E.P. Ramsay, October, 1904, examined, AM KS6430.

Diagnosis. Differs from *P. kgari* sp. nov. in that the tibial spines of both I and II are strong and from *P. venusta* in the abdominal widening, the larger scute, and the larger head of the spermathecae (Fig. 110g). Male unknown.

Description Holotype female AM KS6430

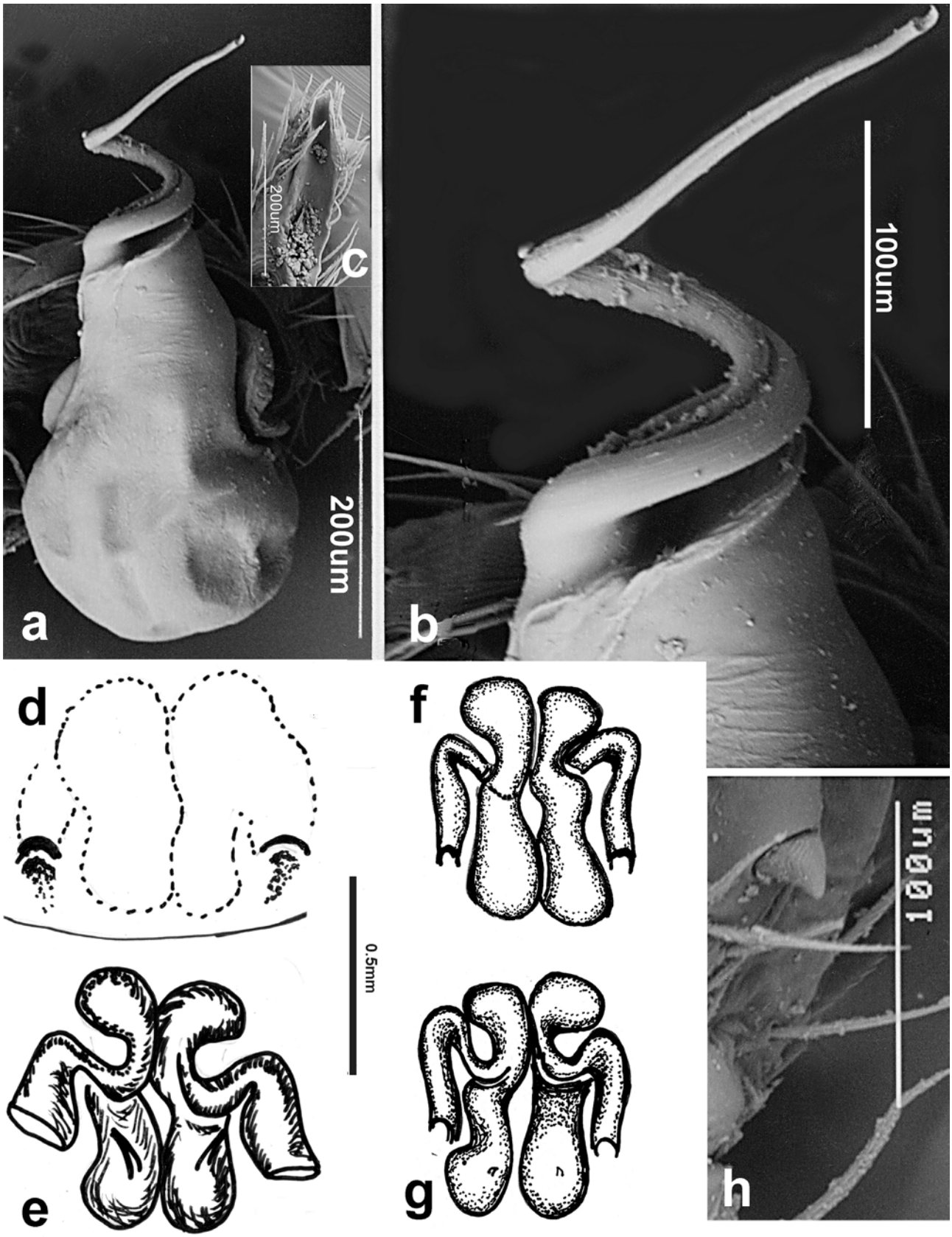


FIGURE 110. *Poecilipta* spp., a–e, h, *P. yambuna* sp. nov., a–c, h, male, scanning electron micrograph, palpal bulb, ventral view (a), b, embolus tip, ventral view; c, apical groove of cymbium, ventral view; d, e, allotype female, MV K4396: epigyne, d, e, external (d), and internal (e). f, g, *P. formiciforme* (Rainbow, 1904), holotype female, AM K6430: epigyne, external (f), and internal (g); h, *P. yambuna* sp. nov., holotype male MV K4403, paracymbial spine, ventral view.

Carapace 2.10 long, 1.11 wide. Abdomen 2.30 long, 1.13 wide. Total length, 4.6.Colour (badly faded): abdomen with large brown dorsal scute for third of length; widens quickly behind that with widening pallid band; dark brown anteriorly and posteriorly of that. Carapace: with smooth cephalic margin. Spines: I and II: ti v2.2.2; me v.2.2; all long and strong. Epigyne: externally with eye-brow ridges over copulatory fossae; copulatory ducts clearly diverge and as long as half length of major duct, form slender U-loop at *ca*. half of CD length and head of spermathecae large and pass back touching and then ectally to major lobe behind U-shaped loop.

Distribution. Known only from Enfield, Sydney, New South Wales.

Remarks. No similar material from the Sydney area (Enfield is now an inner city suburb) has been found. The poor condition of the holotype does constrain better recognition of conspecifics.

Poecilipta kohouti group

Diagnosis. Carapace and abdomen iridescent (Fig. 111a–c). Male embolus with thick spiralled embolus tapering near tip (e.g., Fig. 112a, b); epigyne with small copulatory fossae; spermathecae M-shaped (e.g., Fig. 112e). Femora III, IV with strong subdistal constriction.

Species included*: Poecilipta kohouti* sp. nov., *P. metallica* sp. nov. and *P. ruthae* sp. nov.

Poecilipta kohouti sp. nov.

(Figs 111a, 112a–e. Map 70)

Material. Queensland: holotype ♂, Homevale, 21°23'S 148°33'E, sclerophyll by creek, 6 Apr 1975, R. Kohout, QM S31546. Paratypes: **Queensland**: 1♀ (allotype), taken with holotype, QM S31547;1♂, Barkly H'way, *ca*. 40 km E Camooweal (site 2), 19°58'S, 138°29'E, pitfall, 5–7 Apr 1997, R.J. Raven, QM S40562; 3♂, Lords Table, 22°40'27"S, 148°01"30"E, east slope, open forest, pitfall trap, 9 Jan–4 March 2006, R.J. Raven, QM S22888; 1♀, Davies Creek, Cairns, 16°54'S, 145°32'E, N.C. Coleman, AM KS15692. **New South Wales**: 1♀, Waterfall, 34°08'S, 151°00'E, AM KS15638. **South Australia**: 1♀, Mt Remarkable, Melrose, Flinders Range, 32°50'S, 138°03'E, dry woodland, M.R. Gray *et al*., AM KS49528.

Diagnosis. Differs from other species in iridescent green carapace cuticle dorsally (Fig. 111a); males differ from those of *P. ruthae* sp. nov. in the relatively shorter embolus with curving distal portion (Fig. 112b) and females in the relatively longer spermathecae (Fig. 112e).

Etymology. In honour of Rudy Kohout, one of the legendary preparators at the Queensland Museum, himself an excellent collector and a naturalist and accomplished ant taxonomist.

Description Holotype male QM S31546.

Carapace 2.60 long, 1.44 wide. Abdomen 2.40 long, 1.28 wide. Total length 5.1.

Colour: carapace and dorsal abdominal scute iridescent dark green; carapace also with large white scales; femora orange brown to brown, other leg segments paler; sternum and abdominal venter red brown. Carapace: with over 100 white scales including fovea, on caput and around but not between eyes; margins deeply serrate; serration points *ca*. 1.5 times height apart. Sternum: margins slope gradually to midline; numerous hairs inwardly directed; with ventral coxae cuticle sparsely rugose; long triangular V intercoxal band on III/IV and short V on II/III. Pedicel ventrally long. Legs: white scales sparse on femora. Subdistal femora III and IV with distinct constriction. Spines: weak, short on tibiae I and II. I: fe p1d3; ti v2.2; me p1v(1)2.2. II: fe d2; ti v2.2; me v2.2. III: fe p1d3r1; ti p2d1r2v2.2; me p3r3v2.2.3. IV: fe p1d3r3; ti p2r2v2.2.2; me p3r3v2.2.2. Palp: fe d2. Abdomen: dorsal scute with orange-peel surface and transverse median constriction with few white scales; scute extends partially to lateral surface; anteriorly contiguous with genital scute with deep collar, incised dorsally and rugose with thick anterior edge ventrally; ventral scute extends back to include tracheal area. Palp: tibia short with ventral excavation and retrolateral ledge distally; cymbium twisted, apical groove wide, entire; paracymbial spine a short curved hook or small raised process; subtegular lobes small (prolateral) or large (retrolateral); bulb large with deeply folded spermatic ducts, pre-embolic ridge broad; embolus origin broad remaining wide to near scooped tip.

Allotype female QM S31547

Carapace 2.88 long, 1.52 wide. Abdomen 2.84 long, 1.68 wide. Total length 5.9.

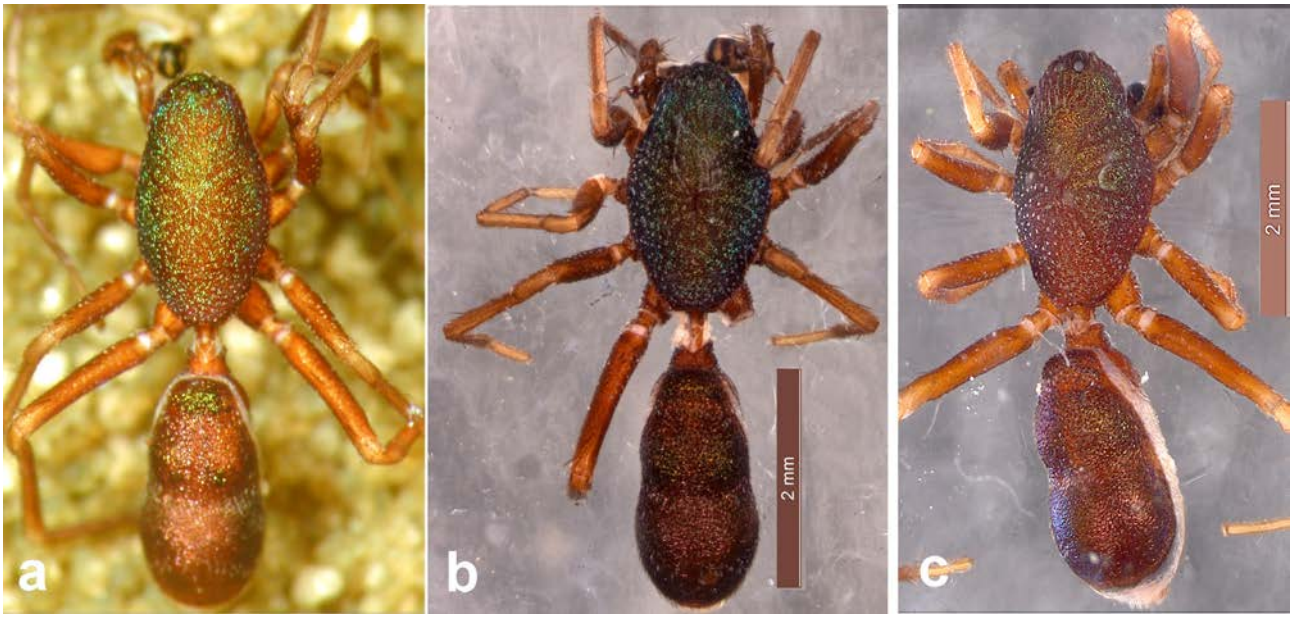


FIGURE 111. *Poecilipta kohouti* species group, habitus, males. a, *P. kohouti* sp. nov., b, *P. metallica* sp. nov., c, *P. ruthae* Santana & Raven, sp. nov.

Colour: carapace and legs as in ♂; abdomen dorsally with iridescent green scute in anterior half, wide transverse pallid band down lateral faces behind that dark brown; ventrally brown with broad pallid behind epigynal groove, medially light brown with two pairs pallid longitudinal bands, between centremost most pallid; genital scute red brown; abdomen ends in pale area. Otherwise like ♂ except: palp: fe d2v4; pa 0; ti p1d1; ta 0. Line of long erect spines on ventral palpal femora. Spines on tibiae and metatarsi I–II strong. Chelicerae: cluster of thick black ornate fang setae. Abdomen: dorsal scute rough, orange peel sculpturing, with anterior constriction followed by large dome and full transverse constriction at half length marks end of scute; genital scute entire with short but distinct rugose collar; tracheal scute large, low, ovoid. Epigyne: two ovoid copulatory fossae laterally; large duct passes forward, recurves short to join elongate sinuous spermathecae.

Distribution and Habitat. Known from open forest, heath and grassland in western Queensland, South Australia, New South Wales and the Northern Territory.

***Poecilipta metallica* sp. nov.**
(Figs 111b, 113a–e. Map 71)

Material. **Queensland**: Expedition National Park, Amphitheatre camp, 25°12'S, 148°59'E, ironbark woodland, 18 Dec 1997–5 Mar 1998, D. Cook, G. Monteith: holotype ♂, pitfall, 25 Sep 1997–18 Dec 1997, QM S44380. Paratypes (same data as holotype but) 1♂, flight intercept trap, QM S60095; 1♀, pitfall, 18 Dec 1997–5 Mar 1998, QM S79929; 1♂, pitfall, QM S52273; allotype ♀, pitfall, QM S52272; 1♂ 1♀, pitfall, QM S31984;

Diagnosis. Males and females differ from those of *P. kohouti* sp. nov. in that the iridescence on the abdomen is dark metallic copper brown (Fig. 111b), not emerald green as on the carapace; enlarged setal bases on sternum (♂), and the large edges of abdominal pedicel collar are more flared.

Etymology. The species epithet comes from that of the ant, *Rhytidoponera metallica* (Smith, 1858), which this species, among others, appears to mimic.

Description Holotype male QM S44380

Carapace 2.50 long, 1.41 wide. Abdomen 2.34 long, 1.25 wide. Total length, 5.1.

Colour: carapace dark emerald green with white scales in broad band around margins; legs dark red brown, tarsi paler; abdomen dorsally dark metallic copper brown; ventrally scute and sternum red brown; femur and metatarsus I brown, patella and tibia lighter, tarsus pallid; legs II–IV femora dark, rest lighter, tarsi pallid. Carapace: rugose; lateral margins serrate. Sternum: domed, rugose. Legs: distinct predistal constriction evident in

femora III and IV. Ventral coxa and femora rugose. Tarsi III and IV ventrally with no scopula but thick black setae; no enlarged setae ventrally on femora. Spines: I: fe p1d2; ti v1.2.2 strong; me v2.2. II: fe p1d2; ti v2.2; me v2.2. III: fe p1d3r1; pa 0; ti p2r2v2.2.0; me p3r3v2.2.2. IV: fe p1d3r1; pa 0; ti p2r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2. Abdomen: dorsal and genital scutes clearly separate; pedicel with long collar flared anteriorly, met by separate sclerite ring anteriorly; dorsal scute for anterior five-sixths with small anterior saddle at anterior one-sixth and widens at 0.8 of length. Palp: cymbium narrow, foliform with coniform paracymbial spine; bulb expanded. Small cucumiform plate basally, not fused to cymbial, large haematodochae with small lateral subtegular lobe, tegulum and embolus like *P. kohouti* sp. nov.

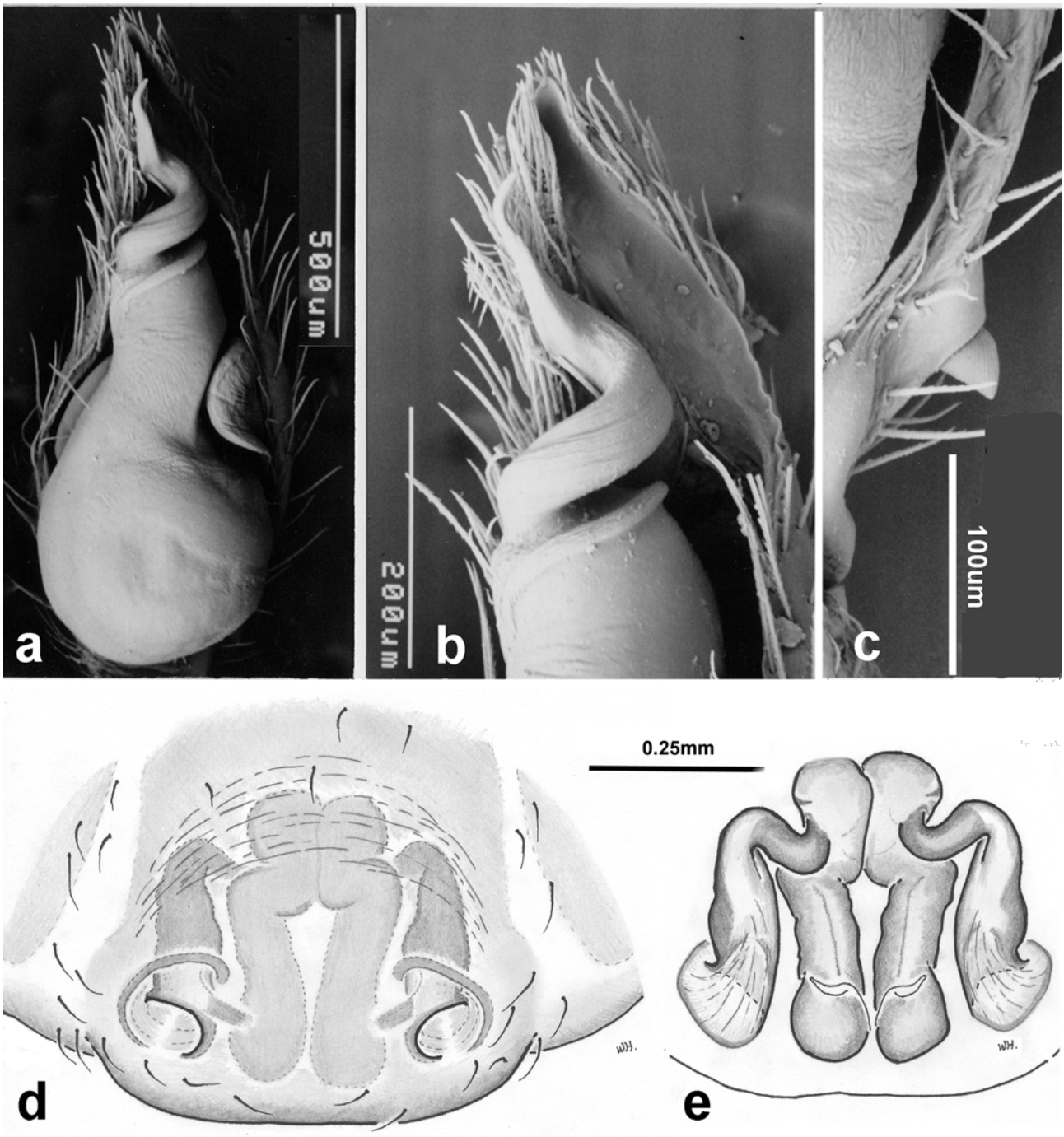


FIGURE 112. *Poecilipta kohouti* sp. nov.: a–c, scanning electron micrographs, male palpal bulb, ventral view (a); b, embolus tip, ventral view; c, paracymbial spine, ventral view. Allotype female, QM S31546; epigyne, d, e, external (d), and internal (e).

Allotype Female QM S52272

Carapace 2.06 long, 1.12 wide. Abdomen 2.25 long, 1.00 wide. Total length 4.4.

Colour: carapace iridescent emerald green; femora dark red brown, patellae and tibiae I pale brown; all leg tarsi pallid; tibia IV with pallid distolateral spots and with white feathery hairs; femora with large, scattered white feathery hairs; abdomen dorsally with rugose copper brown scute for half length, band of white hairs behind scute in saddle, a band at three-quarters of length and pallid cone posteriorly; sternum red brown; ventral abdomen centrally pallid with broad white band midlaterally. Carapace: iridescent rugose with scattered white feathery hairs; margin deeply serrate; posterior declivity long, gentle, with posterior flatter zone; fovea short, at edge of posterior declivity, profile of carapace anteriorly gently sloping to eyes; clypeus subvertical; between carapace edge and coxae a strip-like post-epigastric sclerite widens over coxae IV, between III/IV additional triangular sclerite with central aperture; above coxa I a similar aperture posteriorly on strip; chilum in two small subovoid parts. Eyes: lower edge of AME and ALE in line. Chelicerae: pair of long bristles criss-cross on anterior face; dentition: 2p + 2r; 6–7 long thick fang setae. Maxillae: serrula wide, curved. Sternum: rugose; gently domed, short triangular basally; intercoxal sclerites short. Legs: all coxae rugose; RCH small, dorsoapical; distinct femoral constriction on III and IV; black setae ventrally on all legs. Spines: most strong. I: fe p1d3; pa 0; ti v2.2.s; me v2.2. II: fe d3; pa 0; ti v1.2.2; me pv1rv2. III: fe p2d3; pa d1; ti p2r2v2.2; me p2r3v2.2.3. IV: fe p1d3r1; pa d1; ti p2r2v1.1.2; me p3r3v2.2.3. Palp: fe p2v4; pa p1d1; ta p2. Claws: palpal claw curved, bare; pedal claw tufts not erectible. Scutes: dorsal, a separate rugose iridescent plate with low saddle in anterior quarter of scute, then widens to distinct mound with posterior edge forming anterior edge of wide mid-saddle; sparse white feathery hairs; genital, dorsally broken by two wide paragenital brackets with wide deep dorsal plate; pedicular collar short, laterally with few pointed "cuspules"; tracheal, deep, rounded, triangular; post-epigastric sclerite very short, marginal. Epigyne: two small oblique recurved crescentic ridges leading to long copulatory duct; spermathecae M-shaped.

Distribution and Habitat. Known only from open forest at Expedition Range National Park, Queensland.

***Poecilipta ruthae* Santana & Raven, sp. nov.**

(Figs 111c, 114a–d. Map 72)

Material. Queensland: holotype ♂, Mazeppa National Park, S end, 22°16'S, 147°16'E, brigalow, pitfall, 18 Dec 2000–26 Mar 2001, D. Cook, G. Monteith, QM S59767. Paratypes: **Queensland**: 1♂ 1♀, same data but 24 Oct–18 Dec 2000, QM S59758.

Diagnosis. Both males and females differ from those of *P. metallica* sp. nov. in that in that the carapace and abdomen are iridescent green not brown; males differ from those of *P. kohouti* sp. nov. in the relatively longer embolus with straighter distal portion (Fig. 114a, b) and females in the relatively shorter spermathecae (Fig. 114d).

Etymology. The species is named in honour of Ruth Pimenta de Castro, mother of Renan Castro Santana, the first author of this species.

Description Holotype male QM S59767

Carapace 2.34 long, 1.36 wide. Abdomen 2.30 long, 1.20 wide. Total length, 5.0.

Colour: carapace and dorsal abdominal scute iridescent dark green; carapace also with large white scales. Femora and metatarsi orange brown to brown, other leg segments paler; sternum red brown and abdominal venter orange brown to brown. Carapace: with over 150 white scales including foveal area, but not on caput and around and between eyes; margins deeply serrate, serration points *ca*. from 0.5–2 times height apart. Sternum margins sharply sloped; middle gentle domed; cuticle pustulose; numerous hairs inwardly directed; with ventral coxae cuticle sparsely rugose; long triangular V intercoxal band on I/II/III/IV. Pedicel ventrally deep. Legs: white scales sparse on femora; subdistal femora III and IV with distinct constriction. Spines: weak, short on tibiae I and II. Coxae with small black punctations, most on dorsal. I: femur p1d2; tibia v2.2; metatarsus v2.2. II: femur d2; pa 0; tibia v2; metatarsus v2.2. III: femur p1d2; pa d1; tibia p2v2.+1; metatarsus p2r2v2.2. IV: fe d2; tibia p2r2v2; metatarsus p1d3r1dv2.2. Palp: femur d2; tibia r2. Abdomen: dorsal scute iridescent dark green and gold surface and transverse median constriction with few white scales; scute extends to half of lateral surface; anteriorly contiguous with genital scute with deep collar, incised dorsally and rugose with thick anterior edge ventrally; ventral scute extends back to include tracheal scute. Palp: tibia short with ventral excavation and retrolateral ledge distally; cymbium twisted, apical groove wide, entire; paracymbial spine a short curved hook or small raised

process; bulb large with deeply folded spermatic ducts, pre-embolic ridge broad; embolus origin broad remaining wide to near scooped tip.

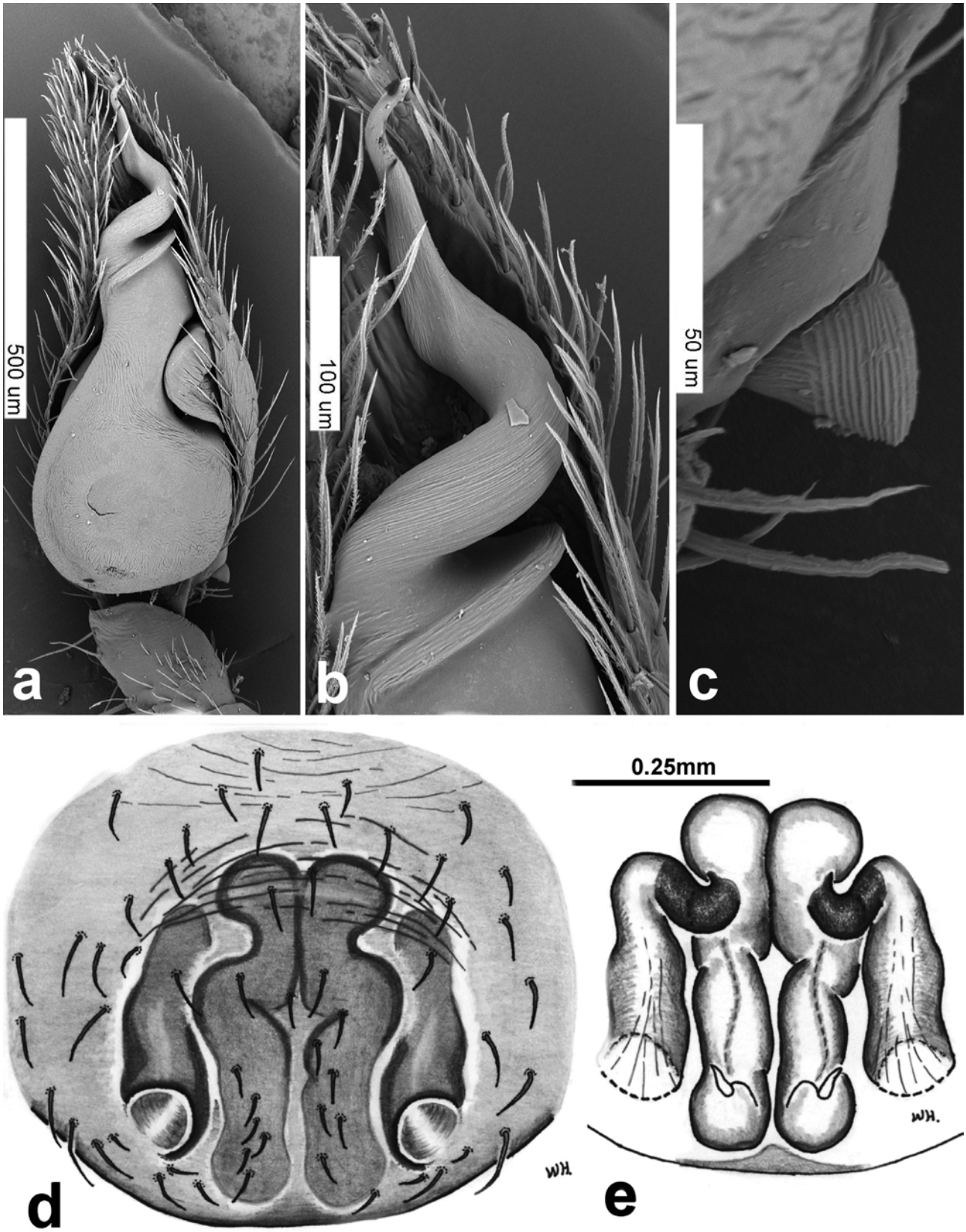


FIGURE 113. *Poecilipta metallica* sp. nov.: a–c, scanning electron micrographs, male palpal bulb, ventral view (a); b, embolus tip, ventral view; c, paracymbial spine, ventral view. Allotype female, QM S52272: epigyne, d, e, external (d), and internal (e).

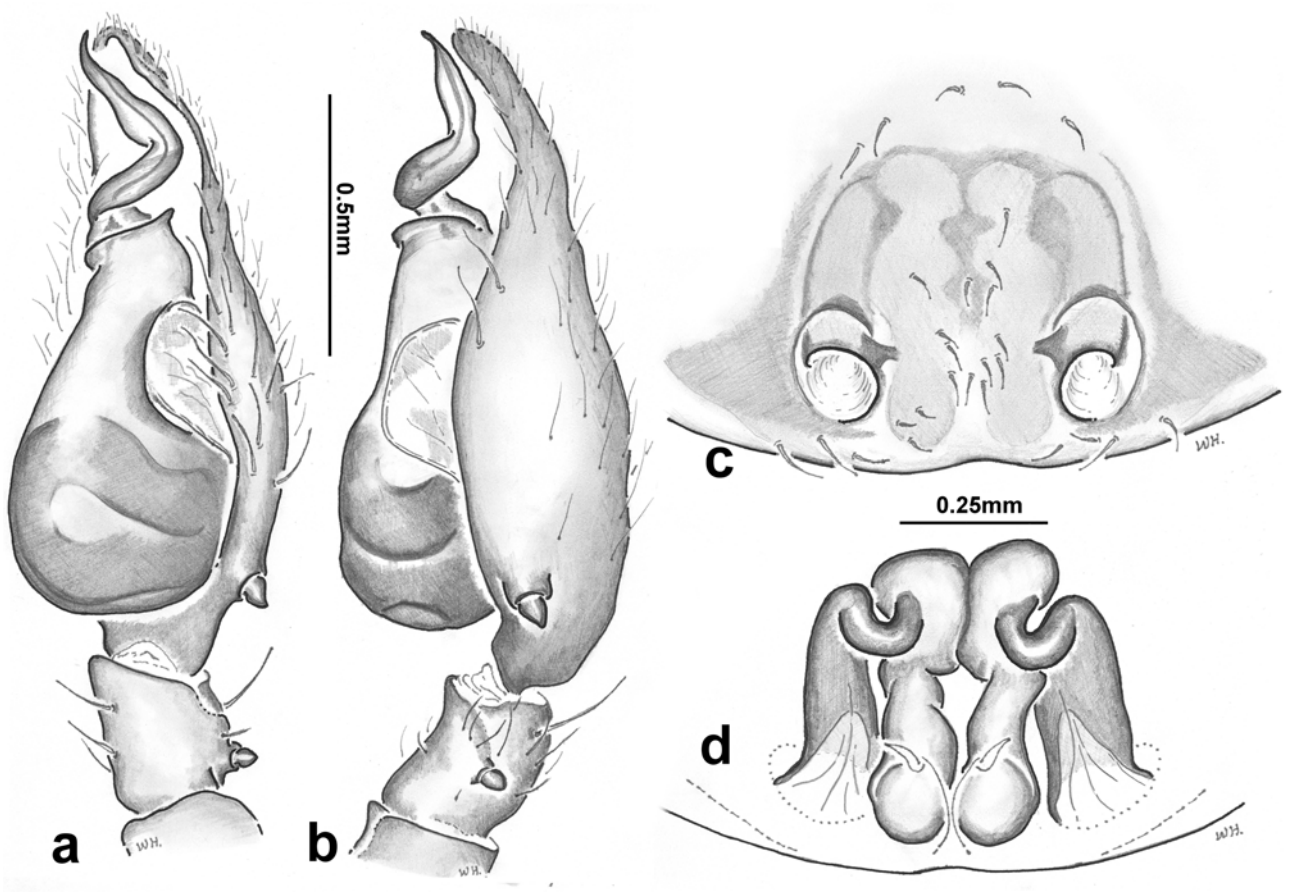


FIGURE 114. *Poecilipta ruthae* Santana & Raven sp. nov.: a–c, palpal patella, tibia, cymbium and bulb, ventral (a) and retrolateral (b) view. Allotype female, QM S59758: epigyne, c, d, external (c), and internal (d).

Allotype female QM S59758

Carapace 2.47 long, 1.36 wide. Abdomen 2.47 long, 1.36 wide. Total length 5.1.

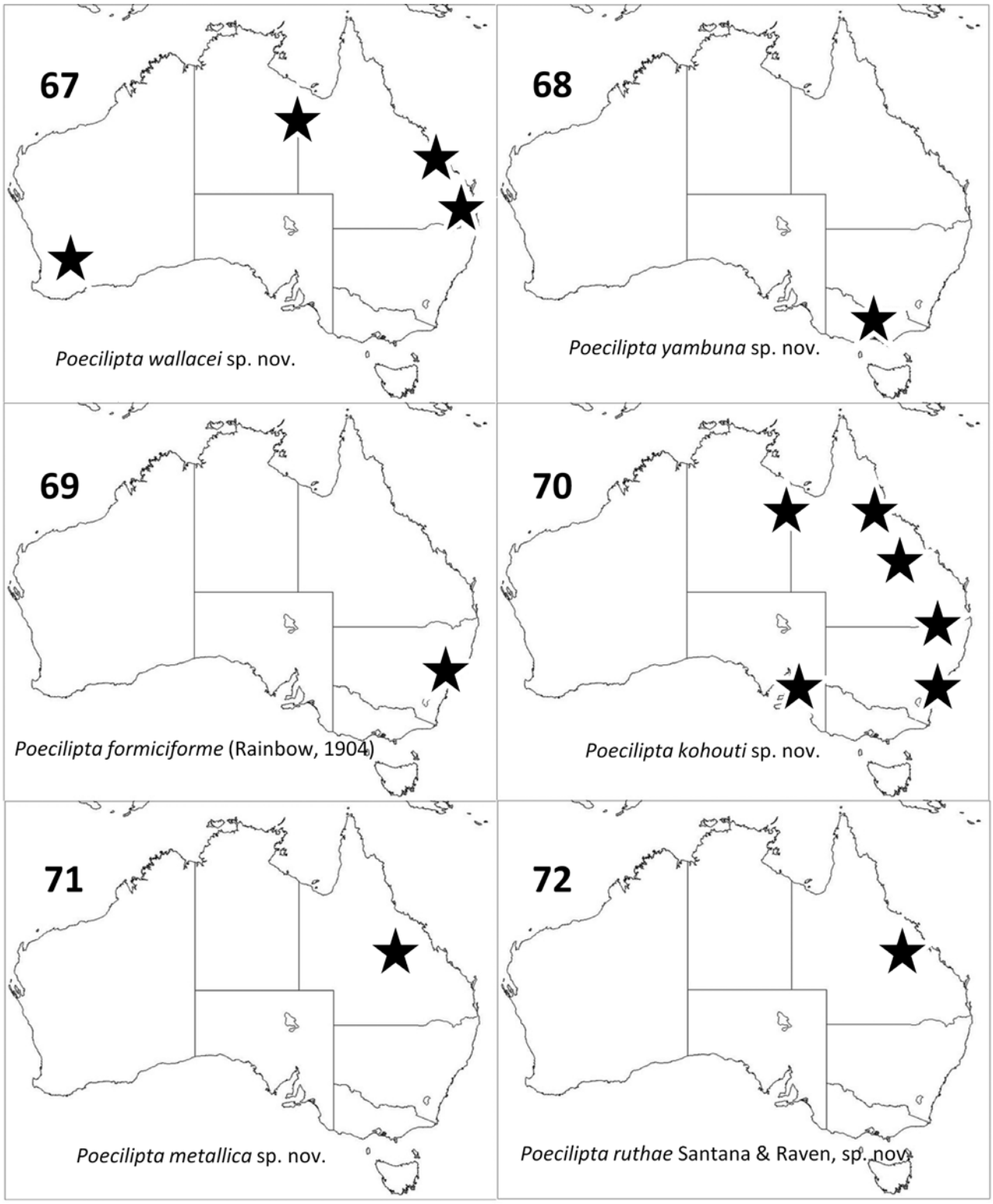
Colour: carapace and dorsal abdomen scute orange and iridescent green and gold; legs as in ♂; abdomen dorsally with iridescent green, orange and gold scute in anterior half, posterior half black with two transverse series of white hairs, anterior lateral half white and posterior lateral half black; ventrally scute brown on epigyne, brown spot near to spinnerets, pallid behind epigynal groove. Otherwise like ♂ except: Spines. I: femur p1d1; tibia v2.2.1; metatarsus v2.2. II: femur d2; tibia p2v2; metatarsus v2.2. III: femur p1d1; tibia p2r1v2.2.2; metatarsus p3r1v2.2.1. IV: femur p1dl.1; tibia p2r1v4; metatarsus p1d2r1v5. Palp: fe d2v4; pa 0; ti p2d1; ta 0. Line of 2 long erect spines on ventral palpal femora. Spines on tibiae and metatarsi I–II strong. Chelicerae: cluster of thick, black, ornate fang setae. Abdomen: dorsal scute rough, orange peel sculpturing, with anterior constriction followed by large dome and full transverse constriction at half length marks end of scute. Epigyne: two ovoid copulatory fossae laterally; large duct passes forward, recurves quickly to join elongate sinuous spermathecae.

Distribution and Habitat. Known only from a vine thicket at Mazeppa National Park, north of Clermont, central Queensland.

Poecilipta carnarvon group

Diagnosis. Carapace and abdomen rarely iridescent (Fig. 115c, d, g, h), often with bloom or sheen (Fig. 115a). Male palp with thick spiralled embolus with wedge-like tip (e.g., Fig. 116a–e); epigyne with large copulatory fossae; spermathecae M-shaped with long posterior duct.

Species included: *Poecilipta carnarvon* sp. nov., *P. contorqua* sp. nov., *P. davidi* sp. nov., *P. micaelae* sp. nov., *P. elvis* sp. nov., *P. harveyi* sp. nov., *P. jilbadji* sp. nov., *P. rawlinsonae* sp. nov., *Supunna smaragdinea* (Simon, 1909), *P. tinda* sp. nov., and *P. zbigniewi* sp. nov.



MAPS 67–72. Records of Australian species of *Poecilipta* Simon, 1897.

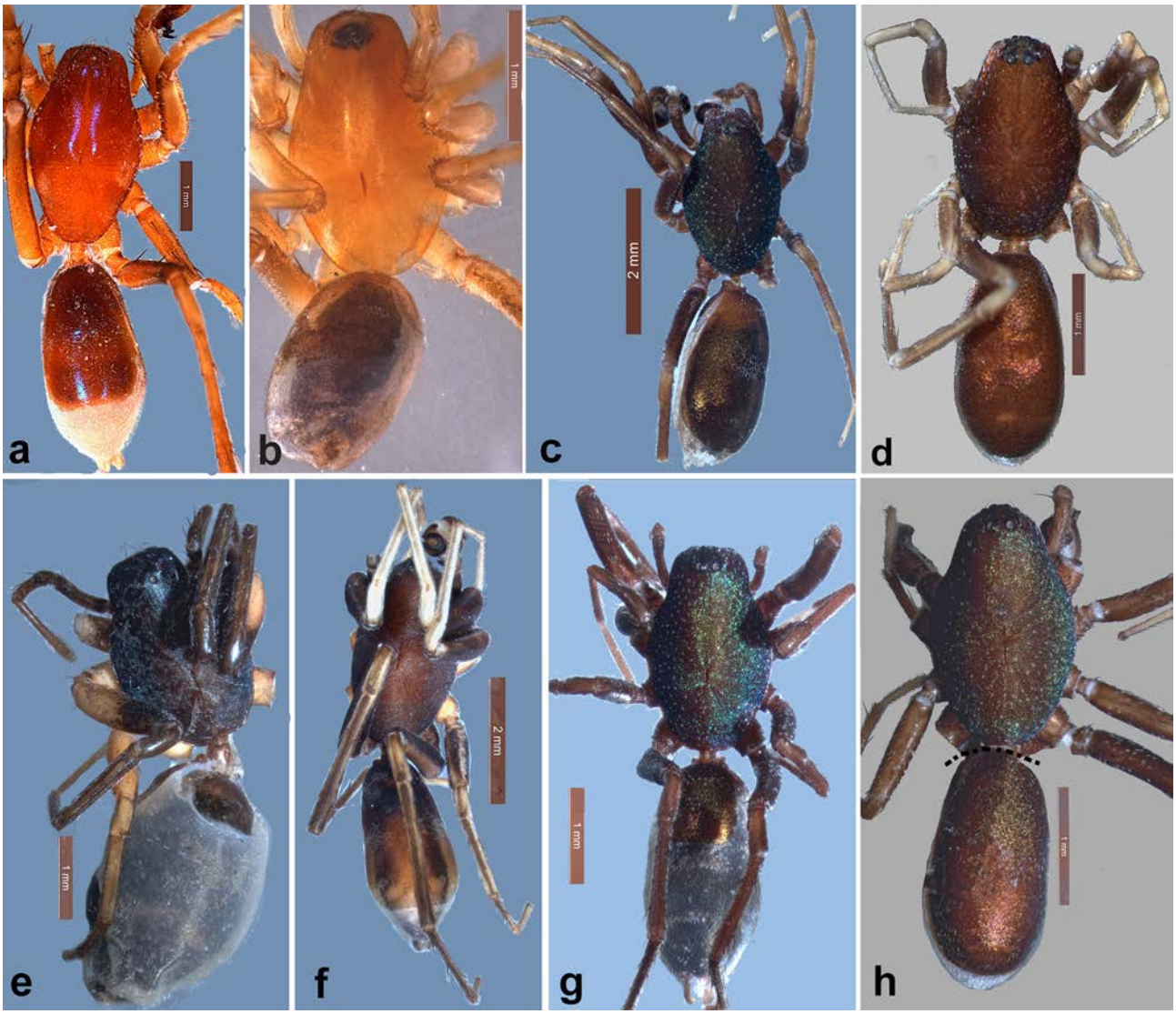


FIGURE 115. *Poecilipta carnarvon* species group, habitus, males. a, *P. carnarvon* sp. nov. holotype male; b, *P. harveyi* sp. nov., holotype male; c, *P. smaragdinea* (Simon, 1909), male; d, *P. rawlinsonae* sp. nov., holotype male; e, *P. contorqua* sp. nov., allotype female; f, *P. micaelae* sp. nov., holotype male; g, h, *P. davidi* sp. nov., female (g) and male (h).

***Poecilipta carnarvon* sp. nov.**
(Figs 115a, 116a–c, 135. Map 73)

Material. **Western Australia**: holotype ♂, Nerren Nerren Station, 27°03'28.1"S, 114°36'24.8"E, 11 Jan–11 May 1995, NE5, wet pits, P. West *et al*., WAM/CALM Carnarvon Survey, WAM 98/1656. Paratypes, same data as holotype but: 1♂, 27°00'21.6"S, 114°32'29.2"E, NE4, WAM 98/1657; 1♂, 11 May–18 Aug 1995, N. Hall, WAM 98/1658.

Diagnosis. Males differs from those of *P. jilbadji* sp. nov. in the three (not four) pairs of spines on tibia I being weak, not strong. Female unknown.

Etymology. The species epithet is a noun in apposition from the type locality.

Description Holotype male WAM 98/1656

Carapace 2.37 long, 1.43 wide. Abdomen 2.56 long, 1.43 wide. Total length 5.1.

Colour: carapace smooth orange brown with blue bloom; dorsal abdominal scute with similar cuticle for two-thirds length, darker brown with broad median transverse pallid band but similar in cuticle; abdomen, save for posterior third, with uniform cover of large black feathery hairs; legs uniformly orange brown. Carapace: long

white hairs for anterior half of carapace; otherwise light cover of fine black setae; fovea at edge of posterior slope; margins smooth. Legs: black feathery hairs on femora to tibiae; femur IV unmodified; many thick setae ventrally on tarsi I and II. Spines: I: fe p1d3; ti v2.2.2.2w; me v2.2. II: fe d3; ti v2.2.2; me v2.2. III: fe p1d3r1; ti p2r2v2.2.1; me p3r3v2.2.1. IV: fe p1d3r1; ti p2d1r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2; pa p1; ti p2. Palp: cymbium with slight apical twist; paracymbial spine large, conical, on large coniform base; subtegular lobe semi-ovoid retrolaterally, evident prolaterally; pre-embolar ridge low; basal spiral flat, much smaller than broad distal spiral, tip directed in slight curve from dorsal tip. Abdomen: ventral scute narrow, laterally convex, distinctly constricted at posterior eighth; dorsal scute for two-thirds length, posteriorly concave; petiolar collar short; post-epigastric sclerites short, open.

Distribution. Known only from Nerren Nerren Station, Carnarvon Ranges, Western Australia.

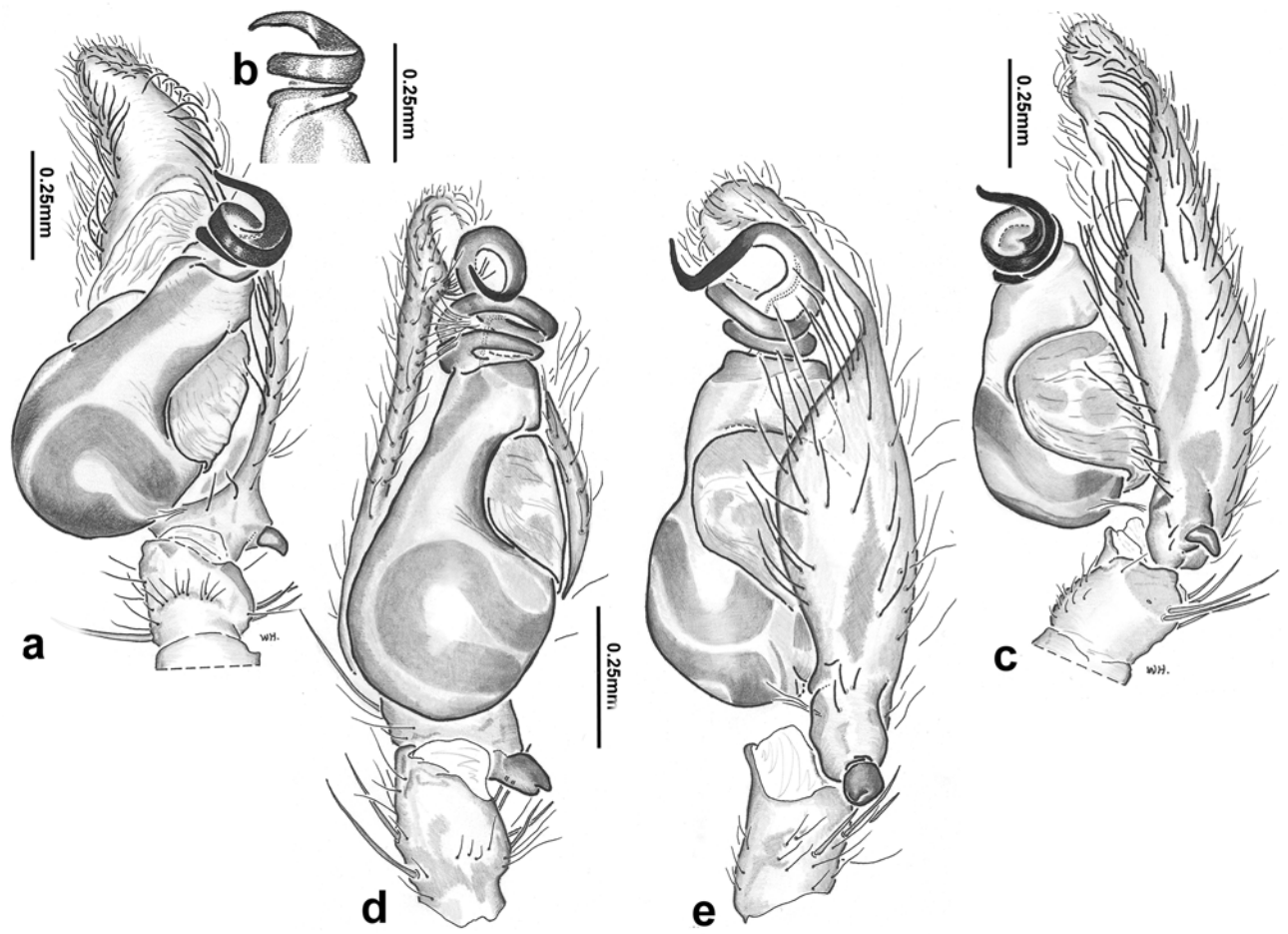


FIGURE 116. *Poecilipta* spp. nov., male holotypes, palpal tibia, bulb and cymbium: a–c, *P. carnarvon* sp. nov., WAM 98/1656, ventral (a, b) and retrolateral (c) views; d, e, *P. harveyi* sp. nov., WAM 98/1659, ventral (d) and retrolateral (e) views.

***Poecilipta contorqua* sp. nov.**
(Figs 115e, 117a–h. Map 74)

Material. New South Wales: holotype ♂, Barrington Tops State Forest, 31°56'S, 151°21'E, M. Gray, G. Cassis, AM KS40124. Paratypes: **New South Wales**: 1♀ (allotype) 1♂, Enfield State Forest, Mummel Forest Road, 8.8 km N of junction with Enfield Forest Road, 31°16'S, 151°50'E, 1350m, 4 Feb–9 Apr 1993, M. Gray, G. Cassis (NPWS Survey), AM KS40123; 1♂, same data as holotype, AM KS40124; 1♂, same data but 31°53'S, 151°31'E, 1200m, 20–22 Feb 2002, C. Reid, AM KS79707; 1♀, Mt Kosciusko, [36°27'S, 148°15'E], 1968–1969, T. Wood, SAMA NN28488.

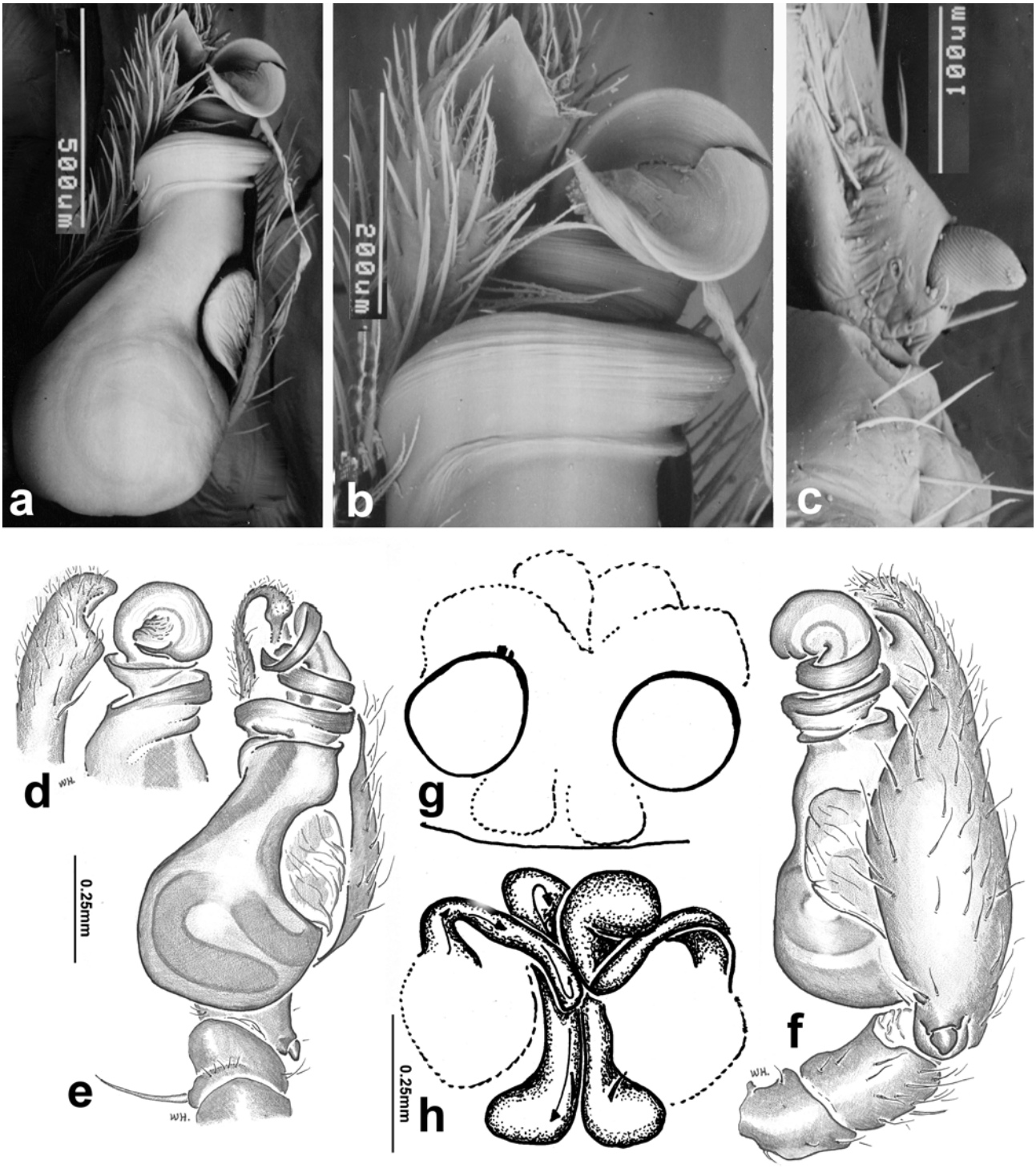


FIGURE 117. *Poecilipta contorqua* sp. nov.: a–c, scanning electron micrographs; a–f, male palpal bulb, ventral view (a); b, d, embolus tip, ventral view; c, paracymbial spine, ventral view; with tibia and cymbium, ventral (e) and retrolateral (f) views; g, h, allotype female, AM KS40123: epigyne, external (g), and internal (h).

Diagnosis. Males differ those of other species in the combination of fine blue green iridescence on carapace, brown dorsal scute and contorted embolus distally flared (Fig. 117b). Females differ from those of *P. zbigniewi* sp. nov. in the smaller head of spermathecae and CO relatively closer to the genital fold (Fig. 117g).

Etymology. The species epithet alludes to the strongly twisted cymbial tip.

Description Holotype male AM KS40124

Carapace 2.84 long, 1.80 wide. Abdomen 2.96 long, 1.44 wide. Total length 6.0.

Colour: carapace very dark brown with fine blue green iridescence and band of white hair in each of two

posterior striae; abdomen with dark brown scute with transverse band of hair anteriorly and medially; tuft of white hair above anal tubercle; sternum red brown, coxae yellow brown; legs I and II dark brown with pallid tarsi and probasal femora red brown; femora to tibiae III and IV red brown, darkening along metatarsi; tarsi pallid. Carapace: with cover of fine hair. Sternum: margins sloped, fine hairs over surface; ventral coxae smooth; distinct intercoxal extensions. Legs: III directed forward; all covered with fine black hairs; femur IV and less so III with slight subdistal constriction. Spines: I: fe p1d2; ti v2.2; me p1v2.2. II: fe p1d2; ti v2.2; me v2.2. III: fe p2d3r1; pa d1 apical ti p2r2v2.2; me p2r2v2.2.2. IV: fe p1d3r1; pa d1; ti p2d1r2v1.2.2; me p3r3v2.2.1. Palp: fe p1d2; ti p1d1. Abdomen: dorsal scute for 0.9 of length; ventral scute fused to tracheal scute; post-epigastric sclerite loops back, closed; pedicel collar very short, no neck. Palp: cymbium dorsally asymmetrical, basally wider on retromargin, twisted apically into narrow apex; paracymbial spine blunt, truncate, distally of which is concavity on cymbium; bulb a large basal spheroid, deeply incised retromedially; embolus origin narrow, then widens in wide spiral, second loop about size widening into wide folded apex curving into cymbial groove.

Allotype female AM KS40124. Like ♂ but

Carapace 2.40 long, 1.53 wide. Abdomen 3.09 long, 1.87 wide. Totally, 5.6.

Abdomen: dorsal scute a rounded square, mostly on anterior face with short dorsal component. Epigyne: copulatory openings large, ovoid, less than a diameter apart; internally, copulatory duct anteriorly, quickly recurves diagonally to midline then folds anteriorly to small head, then duct recurves posteriorly.

Distribution. Known only from Barrington Tops and Enfield State Forest, New South Wales.

Remarks. Evidently, the closest relative to this species is *P. zbigniewi* sp. nov. fom Tasmania. These are thus the only eastern representatives of the otherwise western *P. carnarvon* group; significantly, *P. contorqua* is here recorded from some of the highest mountains in eastern Australia, with altitudes of 1200m for Barrington Tops and 2228 m (the highest is Australia) for Mt Kosciusko. The Tasmanian material does not come from high elevations.

***Poecilipta davidi* sp. nov.**
(Figs 115g, h, 120a–d. Map 75)

Material. **South Australia**: holotype ♂, Gum Lagoon Conservation Park, 36°16'S, 139°59'E, northern boundary, vibration on stony ground, 25 Mar 1992, D. Hirst, SAMA NN8264. Paratypes: **South Australia**: 1♂1♀, same data as holotype, SAMA NN8265, NN8266.

Diagnosis. The female differs from those of *P. smaragdinea* by the rounded, rather than flattened ovoid ridges of the epigyne (Fig. 120b); males differ in having a single wide loop of the embolus (Fig. 120a).

Etymology. The species epithet is in honour of the collector, David Hirst, whose scientific endeavours remain his legacy.

Description Holotype Male SAMA NN8264

Carapace 2.05 long, 1.22 wide. Abdomen 2.11 long, 1.05 wide. Totally, 4.2.

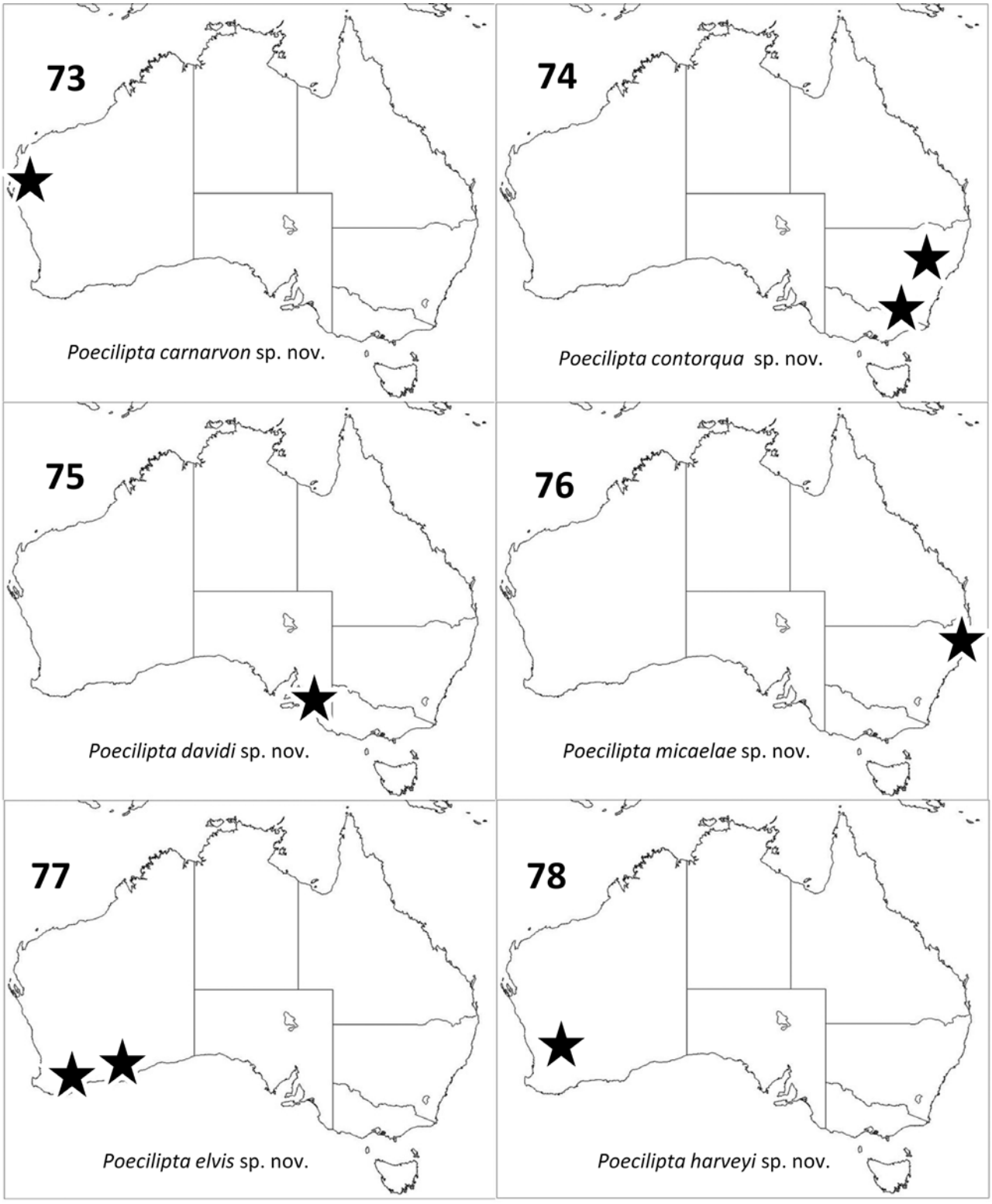
Colour: carapace iridescent green with uniform light cover of large white scaly hairs; abdominal scute for length, red brown iridescence with green tinge in anterior half; brown femora with lighter dorsal band, patella to metatarsi lighter brown, tarsi pallid; sternum, maxillae and other coxae all red brown. Carapace: with strongly serrate margin; fovea short; convex posterior slope and slight pre-foveal depression with convex caput profile; uniform cover of large white feathery hairs. Eyes: of front row smaller and row narrower than back; front: back: long in the ratio 25:32:19. Sternum: centrally flat. Legs: slight but distinct constriction on femur IV; large white feathery hairs on femora. Spines: I: fe p1d3; pa 0; ti v2.2w; me v2.2. II: fe d3; pa 0; ti v2.2; me v2.2. III: fe p2d3r1; pa d1w; ti p2r2v1.2.2; me p2r1v2.2.3. IV: fe p1d3r1; pa d1w; ti p2d1r2v1.1.2; me p2r3v2.1.3. Palp: fe d1.1; pa p1w; ti p2r2w; ta 0. Abdomen: dorsal scute for full length with slight saddle at mid-length; ventral scute full, distally rounded, convex. Palp: paracymbial spine short, curved, beak-like on broad mound; cymbium a straight, tapering cone. Subtegulum semicircular, large; embolus broad with two spirals.

Allotype female, SAMA NN8266

Carapace 2.19 long, 1.28 wide. Abdomen 2.38 long, 1.25 wide. Totally, 4.7.

Epigyne: two spiralled ridges around copulatory opening just over one diameter apart; internally, sinuous ducts lead to small head of spermathecae with small lateral accessory lobe.

Distribution. Known only from Gum Lagoon Conservation Park, South Australia.



MAPS 73–78. Records of Australian species of *Poecilipta* Simon, 1897.

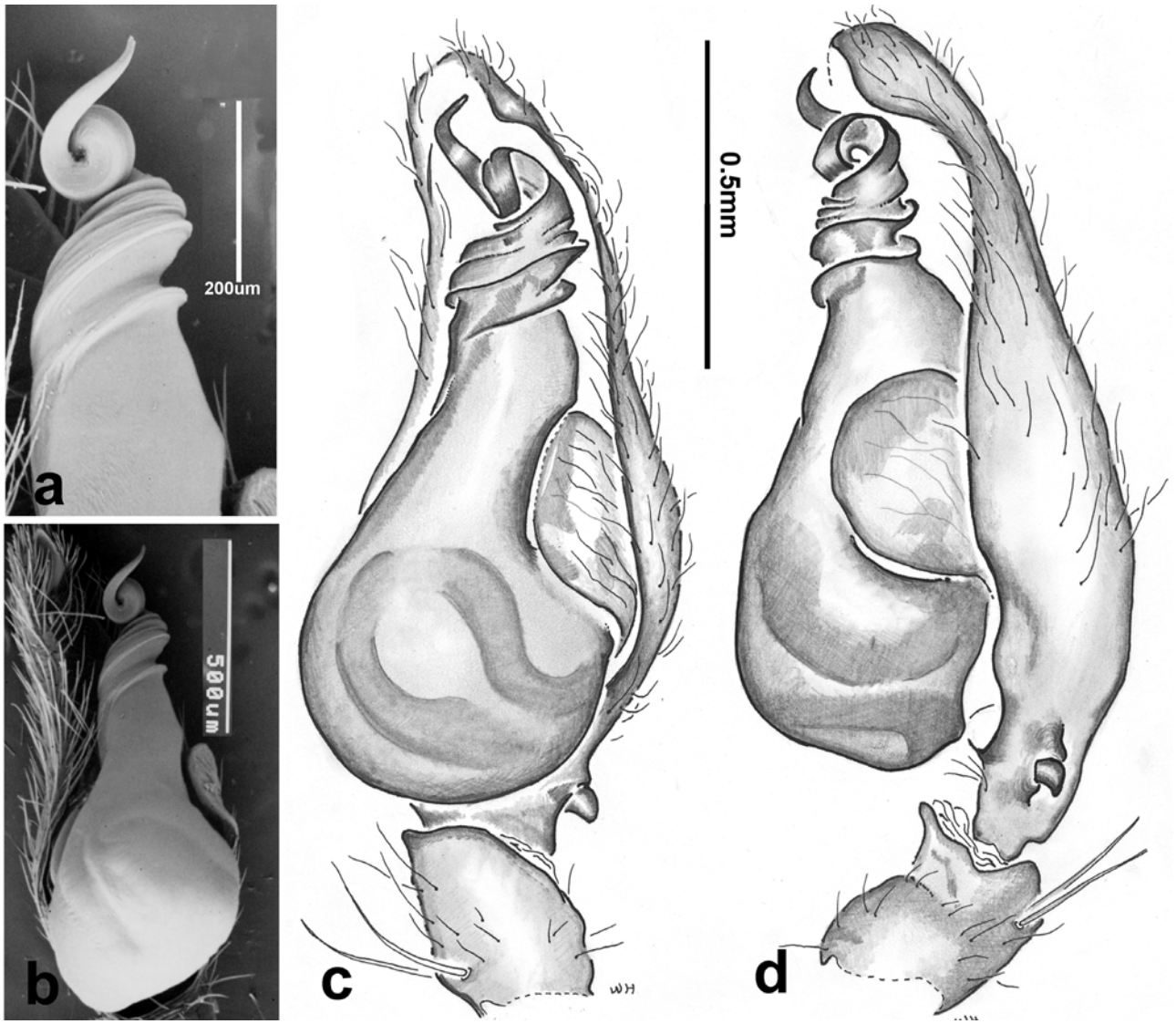


FIGURE 118. *Poecilipta micaelae* sp. nov., male: a, b, scanning electron micrographs; a, embolus tip, ventral view; b, palpal bulb, ventral view; c, d, palpal tibia, cymbium and bulb, ventral (c) and retrolateral (d) views.

***Poecilipta micaelae* sp. nov.**
(Figs 115f, 118a–d. Map 76)

Material. **New South Wales**: holotype: ♂, Ramornie State Forest, Mt Tindal Rd, 29°42'S 152°35'E, M. Gray, G. Cassis Male AM KS40172. Paratype 1♂, taken with holotype, AM KS40171.

Diagnosis. Males differ from those of *P. contorqua* sp. nov. in the embolus tip having two similar basal spirals and lacking the distal flair (Fig. 118a). Female unknown.

Etymology. The species epithet is for my daughter, Micaela.

Description Holotype Male AM KS40172

Carapace 2.96 long, 1.69 wide. Abdomen 2.93 long, 1.49 wide. Total length 6.1.

Colour: carapace brown with dark green sheen; abdomen dorsally with golden sheen; abdominal scute dark brown with band of small white feathery hairs anteriorly and golden hairs for distal half with white tuft above anal tubercle. Legs I and II pallid with dark brown femora with white hairs crowning apices; femora to tibiae III and IV dark brown with pair of pallid longitudinal bands with white hair dorsolaterally; metatarsi brown, tarsi pallid. Sternum and coxae dorsally red brown ventrally II–IV yellow brown. Carapace: finely rugose with fine triangular white hair; margin weakly serrate. Sternum: rugose; domed to centre; intercoxal processes strong. Legs: cover of

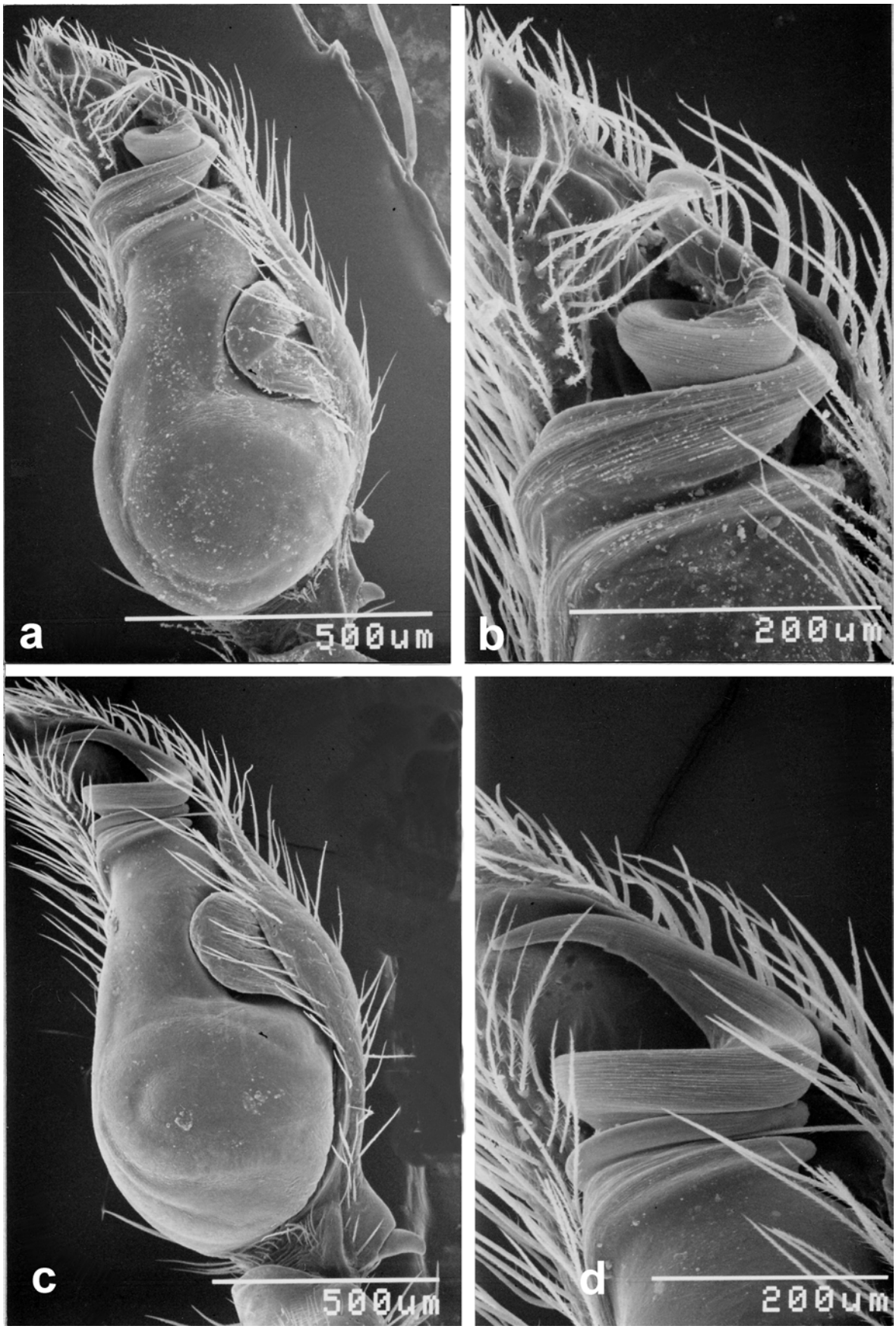


FIGURE 119. *Poecilipta* spp. nov., male palpal bulb, scanning electron micrographs: a, b, *P. elvis* sp. nov., a, palpal bulb, ventral view; b, embolus tip, ventral view; c, d, *P. harveyi* sp. nov., c, palpal bulb, ventral view; d, embolus tip, ventral view.

fine triangular white hairs; no feathery hairs evident; femur IV weakly modified distally; coxae and femora pustulose. Spines: basal pairs on tibiae I, strong, distal weak. I: fe p1d3; ti v2.2.2; me v2.2. II: fe d3; ti v2.2; me v2.2. III: fe p2d3; pa d1; ti p2r2v2.2; me p3r3v2.2.2. IV: fe p2d3; ti p2r2v2.2.2; me p3r3v1.1.2. Palp: fe p1d2; pa p1d1; ti p3. Palp: cymbium dorsally asymmetrical with tapered apex; paracymbial spine short beak-like; cymbium slightly twisted apically; bulb with large spheroidal tegulum, deep incursion of subtegulum; embolus begins as low spiralled ridge with wide fold and narrow keel, then folds and recurves into long tapered tip into cymbial groove and toward tip.

Distribution. Known only from Ramornie State Forest, New South Wales.

***Poecilipta elvis* sp. nov.**
(Fig. 119a, b. Map 77)

Material. Western Australia: holotype ♂, Shannon National Park, Dog Pool, 34°46'S, 116°22'E, 24 Mar 1993, on ground, daylight, M.S. Harvey, J.M. Waldock, WAM 98/1660. Paratype: **Western Australia**: 1♂, Buningonia Spring, 31°26'35"S, 123°31'40"E, Apr 1981, pitfall, W.F. Houston *et al*., WAM T74054.

Diagnosis. Males differs from those of *P. rawlinsonae* sp. nov. in the subapical spiral being much smaller than the basal spiral (Fig. 119b) and in the small paracymbial spine on a low mound (Fig. 119a). Female unknown.

Etymology. The species epithet is from Elvis Presley (1935–1977), rock star, whose curl of hair resembled the terminal curl of the male palpal embolus; it is taken as a noun in apposition.

Description Holotype male (slightly desiccated) WAM 98/1660

Carapace 1.68 long, 1.00 wide. Abdomen 1.68 long, 0.87 wide. Total length 3.5.

Colour: carapace finely pustulose, orange brown without bloom; dark brown dorsal abdominal scute for length, with similar cuticle but white feathery hairs on raised bases; two narrow transverse bands of white hairs anteriorly and near midpoint; ostiate region darker brown; tuft of white hairs over spinnerets; dorsal femora sunburnt orange-red, otherwise legs uniformly yellow brown. Carapace: thick white lanceolate hairs along smooth margins and in posterior striae; dorsally with light cover of fine pallid bipinnate setae; fovea anterior to posterior slope. All eyes small. Abdomen: dorsal and epigastric scute touch but not fused; dorsal scute without saddle; ventral scute wide, laterally convex, posteriorly truncate; dorsal scute posteriorly concave; petiolar collar short. Legs: black feathery hairs on femora; slight constriction distally on femur III, more so on IV. Spines: basal spine on tibia I and II weak, distal strong. I: fe pv1p1d2; pa 0; ti v2.2; me v2.2. II: as for I. III: fe p2d3r1; pa apical 1 weak; ti p2r2v2.2; me p2r2v2.2 +dw4. IV: fe p1d3r1; pa apical 1, weak; ti p2r2v2.2; me p2r2v2.2+dw4. Palp: fe d2v0; pa 0; ti p2r1. Palp: paracymbial spine beak-like, on low process; prolateral edge of tibia with triangular process against cymbium; embolus with narrow basal ridge, large thick spiral followed by small spiral with curved tip.

Distribution. Known only from Shannon Dog Pool and Buningonia Spring, south western Western Australia.

***Poecilipta harveyi* sp. nov.**
(Figs 115b, 116d, e, 119c, d. Map 78)

Material. Western Australia: holotype ♂, W of Minnivale, 31°07'58"S, 117°10'13"E, 21 May–16 Sep 1996, wet pitfall, M.S. Harvey, J.M. Waldock, WAM 98/1659.

Diagnosis. The male differs from those of *P. carnarvon* sp. nov. in the male abdominal scute being for two-thirds of the abdomen length and the subdistal embolic loop being much greater diameter (viewed axially) than basal loop, and from those of *P. elvis* sp. nov. by the absence of a strong distal constriction on femur IV and having the basal and subapical embolar spirals similar in size. Female unknown.

Etymology. For Dr Mark Harvey, Western Australian Museum, in small recognition for his drive to implement the short range endemic concept for invertebrates (Harvey, 2002).

Description Holotype male WAM 98/1659

Carapace 1.68 long, 1.12 wide. Abdomen 1.43 long, 1.00 wide. Total length 3.2.

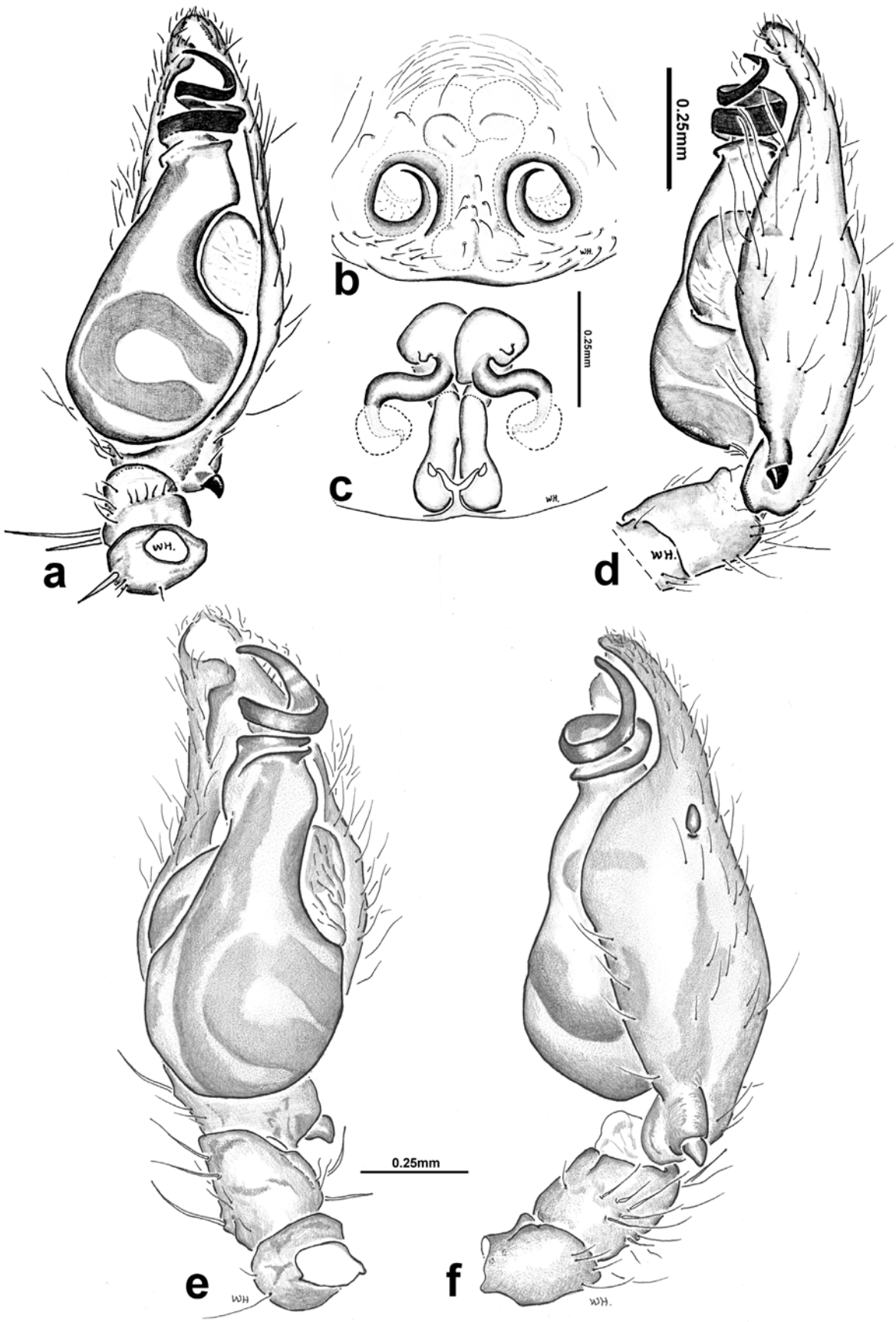


FIGURE 120. *Poecilipta* spp. a–d, *P. davidi* sp. nov., holotype male SAMA NN8264 (a, d), allotype female SAMA NN8265 (b, c): a, d, male palpal tibia, cymbium and bulb, ventral (a) and retrolateral (d) views; b, c, epigyne, external (b), and internal (c). e, f, *P. jilbarji* sp. nov., holotype male, palpal patella to cymbium (mirrored), ventral (e) and retrolateral (f) views.

Colour: carapace matt orange brown without bloom. Dorsal abdominal scute uniformly darker brown but similar in cuticle and for two-thirds; abdomen with uniform cover of white feathery hairs; legs uniformly brown. Carapace: light cover of fine pallid setae; fovea at edge of posterior slope; margins smooth. Legs: feathery hairs black on femora, white on patellae and tibiae; femur IV unmodified. Spines: three pairs of spines on tibiae I and II. I: fe p1d3; ti v2.2.2; me v2.2. II: fe d3; ti v2.2.2; me v2.2. III: fe p2d3r1; ti p2r2v2.2.2; me p3r3v2.2.2. IV: fe p1d3r1; ti p2r2v2.2.3; me p3r3v2.2.3. Palp: fe p1d2; pa 0; ti p1. Palp: cymbium with distinct apical twist, paracymbial spine large, apically blunt on large base, subtegular retrolateral indent large, embolic division with two apical twists, most distal twist larger with deep flair from dorsal tip. Abdomen: ventral scute moderately narrow, laterally convex, tapered for distal quarter; dorsal scute posteriorly concave; petiolar collar short.

Distribution. Known only from west of Minnivale, south-western Western Australia.

***Poecilipta jilbadji* sp. nov.**
(Fig. 120e, f. Map 79)

Material. Western Australia: holotype, ♂, Jilbadji Nature Reserve, 31°29'S, 119°13'E, R.A. How, 13 Mar 1978, WAM 98/1662.

Other material: W**estern Australia:** 1♂, Woodstock Station, site WS1, 21°37'01"S, 118°57'13"E, 6–9 May 1988, J.M. Waldock, WAM T74051.

Diagnosis. Males differ from those of *P. carnarvon* sp. nov. in having three pairs of strong spines ventrally on tibia I rather than four pairs of weak spines; also, the curvature of the carapace profile in *P. jilbadji* sp. nov. is similarly curved on either side of midpoint whereas in *P. carnarvon* sp. nov. it is more or less flat from the fovea forward. Female unknown.

Etymology. The species epithet is a noun in apposition from the type locality.

Description Holotype male WAM96/1662

Carapace 2.71 long, 1.81 wide. Abdomen 2.96 long, 1.43 wide. Total length 5.8.

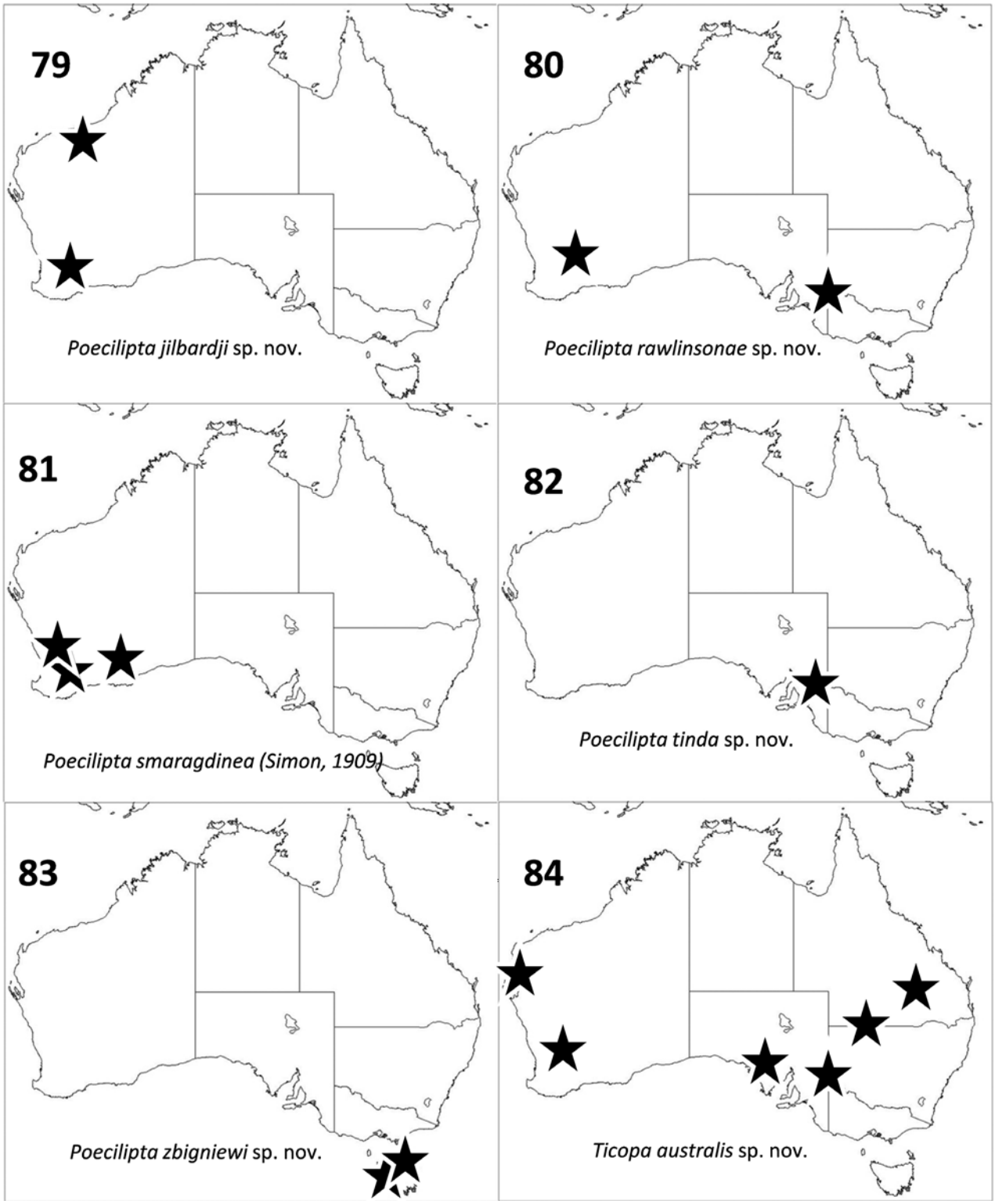
Colour: carapace smooth orange brown with blue bloom. Dorsal abdominal scute for 0.8 of length, darker brown with blue-green bloom anteriorly and centrally a broad median triangular pallid zone similar in cuticle to dark zone; abdomen with uniform cover of large brown feathery hairs; legs light orange brown with long stripes of dark hair along dorsal and lateral femora and dorsal patellae-metatarsi. Carapace: long white hairs for anterior half of carapace with long black bristle behind each PLE and on clypeus edge below each ALE; otherwise light cover of fine black setae; fovea at edge of long convex posterior slope. Margins smooth; cuticle finely rugose. Caput descends strongly to eyes from anterior to fovea. Legs: black feathery hairs on femora to tibiae. Femur IV distally unmodified. Spines: I: fe p1d3; ti v2.2.2, all strong; me v2.2. II: fe p1d3; ti v2.2; me v2.2. III: fe p2d3r1; pa d1; ti p2r2v2.2.1; me p3r3v2.2.1. IV: fe p1d3r1; pa d1; ti p2d1r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2r1; ti p2. Palp: cymbium with slight apical twist; paracymbial spine large, conical, slightly recurved on large coniform base. Subtegular lobe semicircular retrolaterally, evident prolaterally. Pre-embolar ridge low; basal spiral flat, much smaller than broad distal spiral, tip directed into cymbium tip. Abdomen: ventral scute narrow, laterally straight, distinctly constricted only posteriorly; dorsal scute posteriorly concave; petiolar collar short.

Distribution. Known only from Jilbadji Nature Reserve and Woodstock Station on the western Coast of Western Australia.

***Poecilipta rawlinsonae* sp. nov.**
(Fig. 121a–c. Map 80)

Material. Western Australia: holotype ♂, Kalgoorlie, 30°45'S, 121°28'E, March 1968, WAM 84/1145. Paratype: **South Australia**: 1♂, Renmark, 79 km NNW, 33°31'S, 140°24'E, *Casuarina* woodland, flight/ground intercept trap, 29 Mar–3 May 1995, K. Pullen, QM S32634.

Diagnosis. Males differ from those of *P. metallica* sp. nov. in the cymbium being strongly twisted apically, the paracymbial spine is large and conical on large conical base, the subtegular retrolateral indentation is deep, the embolic division has two large spirals, and the embolus tip is sinuous. Female unknown.



MAPS 79–84. Records of Australian species of *Poecilipta* Simon, 1897 and *Ticopa* gen. nov.

Etymology. In honour of Ms Wendy Rawlinson, Queensland Museum, whose late discovered goldmine (for which the type locality was long renowned) of arachnological and artistic abilities are matched only by her dedication to her job, however repetitive.

Description Holotype male WAM 84/1145

Carapace 2.03 long, 1.26 wide. Abdomen 2.13 long, 1.09 wide. Totally, 4.2.

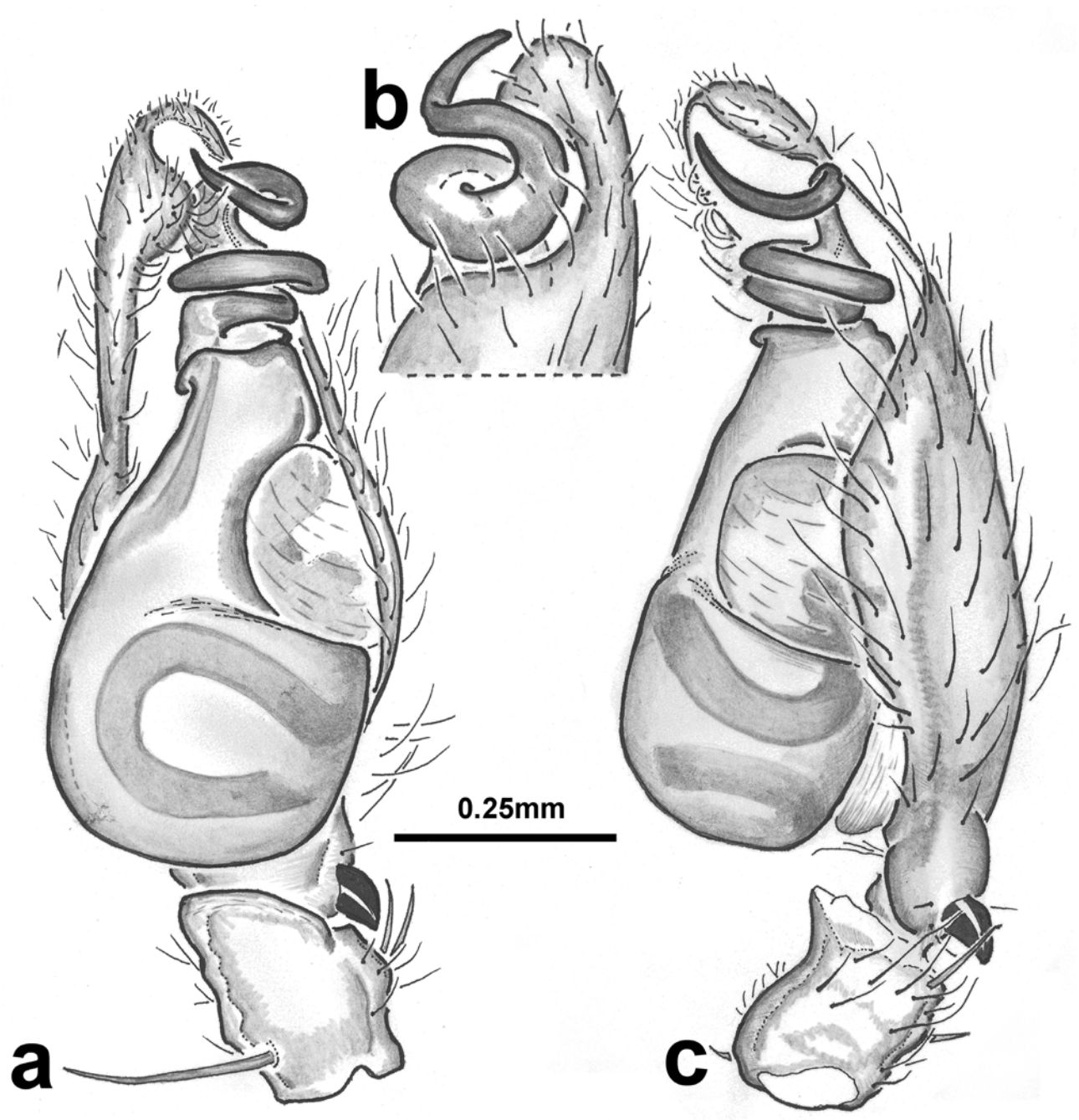


FIGURE 121. *Poecilipta rawlinsonae* sp. nov., holotype male WAM 84/1145 (a–c): a, c, male palpal tibia, cymbium and bulb (mirrored), ventral (a) and retrolateral (c) views; b, embolus, axial.

Colour: carapace and full dorsal abdominal scute iridescent copper brown. Femora brown, otherwise legs uniformly yellow brown. Carapace: cuticle iridescent and with finely reticulated ridges. Large white paddle-shaped hairs around centre on submargins. Steep ledge above distinctly serrate margin; fovea set just anterior to short posterior slope. Slight prefoveal saddle and lightly arched caput; eyes highest. Legs: large white paddle-shaped hairs on basal femora. Distinct subdistal constriction on femur IV, less so in III. Spines: two weak pairs on tibiae I, II; one weak pair on metatarsi. Abdomen: scutes: dorsal for length; ventral wide, laterally convex, posteriorly widest; petiolar collar short. Palp: large beak-like paracymbial spine set on domed mound; bulb with deep tegular indentation, embolus with two thick spirals and one thick transverse twist (Fig. 121a–c); cymbium apically strongly twisted.

Distribution. Known only from Kalgoorlie, south-west Western Australia and Renmark, near the northern edge of the border of South Australia and Victoria.

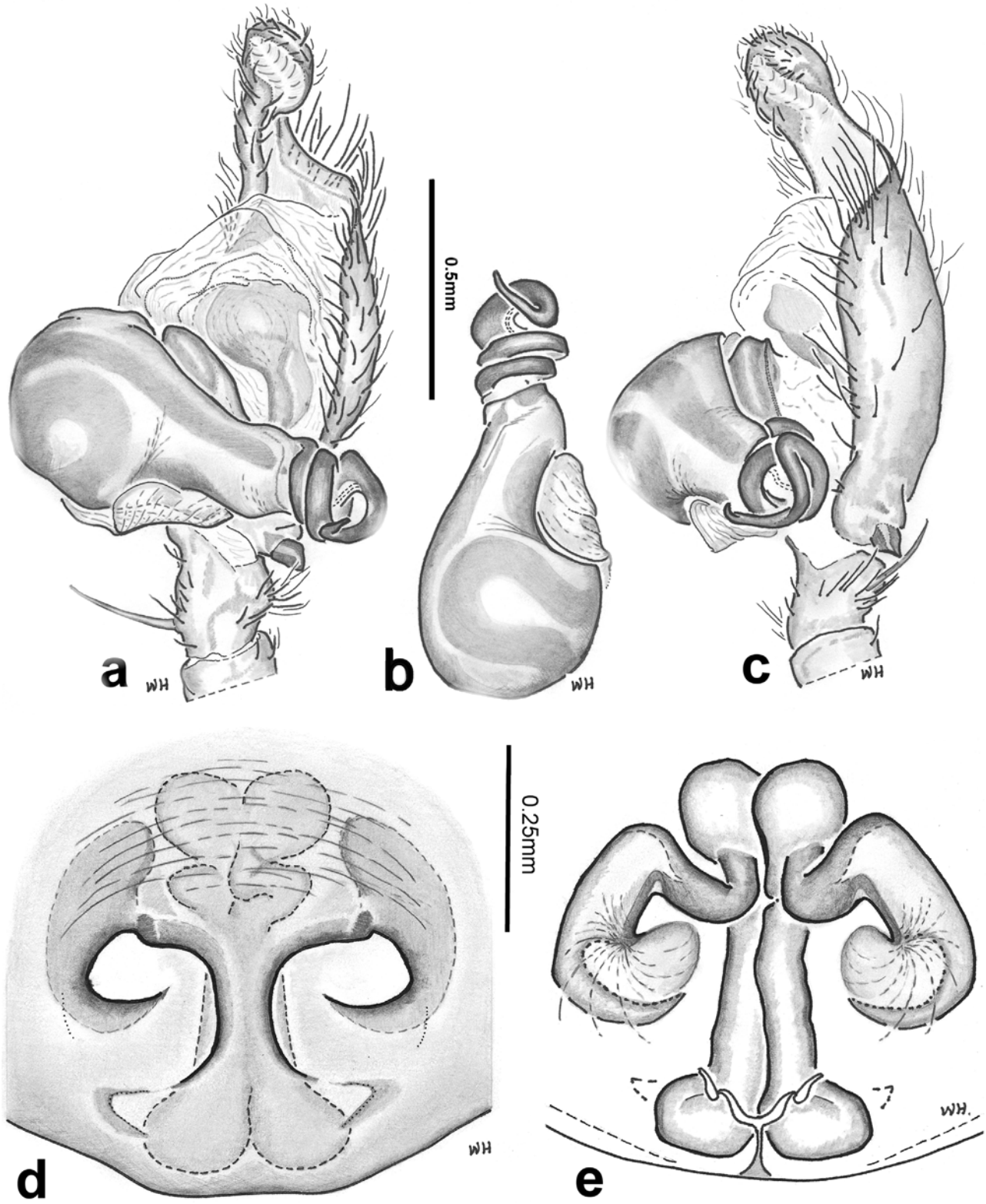


FIGURE 122. *Poecilipta smaragdinea* (Simon, 1909), male WAM 98/1673 (a–c), female WAM 98/1673 (d, e): a–c, male palpal tibia, cymbium and bulb, ventral (a, b) and retrolateral (c) views; d, e, epigyne, external (d), and internal (e) views.

***Poecilipta smaragdinea* (Simon, 1909), new combination**
(Figs 115c, 122a–e. Map 81)

Supunna smaragdinea Simon, 1909: 176; Rainbow, 1911: 254; Moritz & Fischer, 1988: 148.

Material. **Western Australia**: lectotype, here designated, ♀, Wooroloo, [31°48'S, 116°18'E], ZMB 28259; paralectotype here designated, 1♀, MNHN.

Other Material: Western Australia: 3♂, 1♀, Norman Road, Cardup site NO, 32°15'49"S, 116°00'13"E, 16 Apr–17 Jun 1996, J.M. Waldock, P. West, A. Longbottom, WAM 98/1668; 1♂, "Seida" Grass Patch, 33°14'S, 121°44'E, 4 Apr 1995, A.F. Longbottom, WAM 98/1669; 2♀, Goongarrie (GGR4), 29°55'S, 121°08'E, Jul 1981, W.F. Humphreys *et al*., WAM Goldfields Survey, WAM 98/1670; 1♂, same data but dune top; 1♀, 20 km NE Newdgate, 32°57'S, 119°09'E, mallee, 8 Apr 1993, G. Harold, WAM 98/1671; 4 juv., Grass Patch, 33°14'S, 121°43'E, 5 Feb 1988, A.F. Longbottom, WAM 98/1672; 2♂, 1♀, Brickwood Reserve, Cardup site No. 2, 32°14'02"S, 116°00'07"E, 16 Apr–17 Jun 1996, J.M. Waldock, P. West, A. Longbottom, WAM 98/1673.

Diagnosis. Differs from *P. rawlinsonae* sp. nov. in the carapace being entirely iridescent green with white scales; in males, the retrolateral subtegular lobe being larger, the straighter coniform paracymbial spine and the basal spiral of the embolus being lower than the final spiral. In females, the strongly ovoid shape of the copulatory ridges (Fig. 122d) readily distinguish it from other species for which females are known in which the ridges are circular.

Description Male WAM 98/1668

Carapace 2.38 long, 1.35 wide. Abdomen 2.61 long, 1.28 wide. Totally, 5.2.

Colour: carapace iridescent green with white scale-like hairs, abdominal scute and legs dark red brown with paler tarsi; abdomen with tuft of white hair above spinnerets. Carapace: cuticle finely rugose with scattered large white scale-like hairs. Distinctly serrate keeled margin; fovea set just anterior to short posterior slope. No prefoveal saddle; lightly arched caput; eyes highest. Legs: large white paddle-shaped hairs on basal femora, in band on retrodorsal edge of III and IV; femur IV and to lesser extent III with distinct subdistal constriction. Spines: I: fe d3; ti v2.2.1; me v2.2. II: fe d3; ti v2.2; me v2.2. III: fe p2d3r1; pa d1; ti p2r2v2.2.2; me p2r2v2.2.2. IV: fe p1d3r1; ti p2r2v2.2.2; me p3r3v2.2.2. Palp: fe p1d2; pa p1; ti p2. Palp: cymbium strongly twisted distally and forming narrow subdistal trough; large retrolateral subtegular lobe; straight coniform paracymbial spine; embolus distally recurves twice. Abdomen: ventral scute narrow, long, laterally straight, posteriorly widest; petiolar collar short.

Female WAM 98/1668 like ♂ except as follows:

Carapace 2.40 long, 1.47 wide. Abdomen 2.44 long, 1.44 wide. Totally, 5.0.

Colour: abdomen with strong iridescent green-brown scute for anterior one-third (one-fifth in holotype); otherwise dorsally dark brown with two narrow transverse bands of white hair in posterior half, and tuft of white hair above spinnerets; laterally a wide sash of white hairs sweep down to median brown rectangular marking ventrally. Legs dark brown with spots of white hair retrolaterally on distal femora, and basal and distal tibiae III and IV. Epigyne: strongly sclerotised shield with two large transverse ovoid fossae centrally separated by long narrow ridge; each fossa with distal trough with shallow tongue-like depression basally; from each fossa, copulation duct passes forward, reflexes back then forward, crossing transversely to apical lobe folding dorsally and in long narrow spermathecae with basal sphere.

Distribution. Known from south-western Western Australia.

Remarks. Material trapped in Gault's solution showed loss of iridescence.

***Poecilipta tinda* sp. nov.**
(Fig. 123a, b. Map 82)

Material. **South Australia**: holotype ♀, 5 km SW Tinda Catch, 33°57'00"S, 139°54'40"E, Pitfall NK0101, 2 Oct 1992, NPWS South Olary Plains Survey, SAMA NN8277.

Diagnosis. The female differs from those of all other species in the *P. carnarvon* species group by the very large copulatory fossae.

Etymology. The species epithet is a noun in apposition from the type locality.

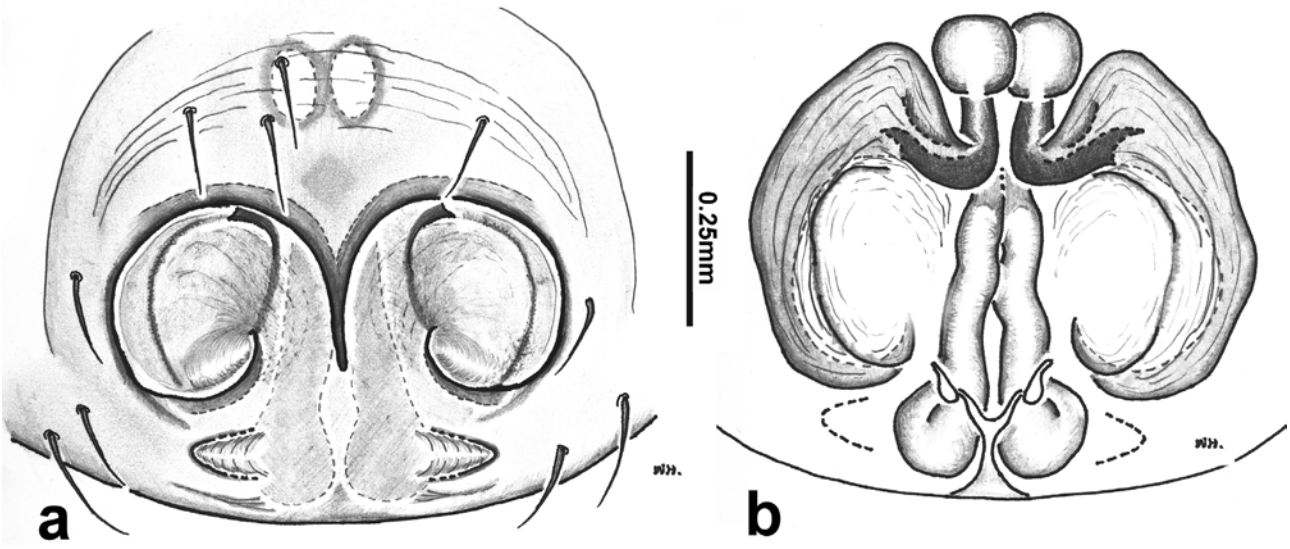


FIGURE 123. *Poecilipta tinda* sp. nov., female holotype, SAMA NN8277, epigyne, external (a), and internal (b).

Description Holotype female SAMA NN8277

Carapace 2.34 long, 1.56 wide. Abdomen 2.13 long, 1.41 wide. Total length 4.5.

Colour: carapace and dorsal abdominal scute dark reddish brown with greenish tinge and white feathery scales. Femora dark brown, tibiae basally brown, fading to yellow brown. White scales on femora. Eyes: AME>PLE>>PME>ALE. Chelicerae: at least three large serrate setae on low fang shield. Sternum: surface distinctly reticulated. Tracheal spiracle a half oval, spiracle on straight edge. Legs: femur III with slight constriction; IV absent. Spines: patella spines only on palp. I: fe p1d2; ti v2.2; me v2.2. II: fe d3; ti v1.1; me v2.2. III: fe p2d3r1; pa d1; ti p2r2v2.2.2; me p2r2v2.2.2. IV, absent. Palp: fe p1d2; pa p1d1; ti p2. Epigyne: pair of very large copulatory fossae form septum anteriorly but joined posteriorly; similarly, very large spermathecae.

Distribution. Known only from Tinda Catch, South Australia.

***Poecilipta zbigniewi* sp. nov.**
(Figs 124, 125a–e. Map 83)

Material: **Tasmania**: holotype ♂, Flat Rock, Chaunceyvale, TMAG J4206. Paratypes: **Tasmania**: allotype ♀, 1♀, same data but TMAG J4198; 1♀, Mount Nelson, South Hobart, 42°56'S, 147°20'E, from eucalypt forest, under rocks & logs, 5 May 1996, L.J. Boutin, TMAG J4493; 2♂, 1♀, Trevallyn, 41°27'S, 147°10'E, V.V. Hickman, AM KS28952, KS28953.

Diagnosis. Males differ from those of *P. contorqua* in the smaller and simple, unflared embolus tip; females are unusual in that the copulatory ducts first recurve back ectally (not entally as almost universal in *Poecilipta*, e.g. Fig. 117h) coming to the spermathecal insertion from dorsal not medial (Fig. 125e).

Etymology. Named in honour of Zbigniew Preisner (born 1955), a Polish film score composer, well known for his work with film director Krzysztof Kieślowski (1941–1996).

Description Holotype male TMAG J4206

Carapace 2.03 long, 1.40 wide. Abdomen 2.28 long, 1.18 wide. Total length 4.4.

Colour in alcohol: carapace matt brown with black reticulations and two light lines in posterior striae; abdomen dark brown, scute (0.8 of length) brown, with two bands of white hair in anterior fifth and half length. Legs: length of palp, femur I and distal 0.8 of II dark brown, rest pallid. Sternum and chelicerae brown, coxae pallid. Carapace: Margins with widely spaced small serrations. Sternum slightly domed. Chelicerae with low fang shield with long weak setae. Abdomen: pedicel with short but distinct collar. Ventral scute broad, rounded rectangular, includes tracheal spiracle. Legs: femur III with distinct predistal constriction, not evident on IV. Spines: weak paired spines ventrally on tibiae and metatarsi I and II. I: fe pv1p1d3; pa 0; ti v2.2; me v2.2. II: fe p3r3; pa 0; rest like I. III: fe p2d2r1; pa 0; ti pd2r1v2.2.2; me p2r2v2.2 +dw4. IV: fe p1d2; pa d1; ti p1d2r1v2.2.2;

me p3r3v2.2+dw4. Palp: fe pad3; pa p1; ti p2. Palp: distinct paracymbial spine on low mound; cymbium basally narrow, widens quickly then constricts to digitiform cymbial tip; embolus widens from distal bulb twisting into small spiral.

FIGURE 124. *Poecilipta zbigniewi* sp. nov., habitus, female (Photo: Robert Whyte).

Allotype female TMAG J4198, like ♂ but:

Carapace 2.50 long, 1.68 wide. Abdomen 2.87 long, 1.81 wide. Total length 5.5.

Colour in alcohol: carapace with almost black caput, rest dark brown with black reticulated marks, band of feathery hairs in posterior striae. Legs like ♂; abdomen with dark brown scute, small band of white hairs across anterior edge of abdomen, and two pairs of white hair spots mid-dorsally and tuft of white hairs above spinnerets. Chelicerae: fang mound low with 8–10 fine curved hairs. Spines: like male but extra pair of spines basally on right (but not left) tibia. Palp: fe p1d2; pa p1d1; ti p2d1; ta p1r1v2, tarsus 1.09 long, i.e., 0.43 of carapace length. Legs: femoral constriction like ♂. Abdomen: dorsal scute square, 0.3 of length; tracheal scute broad, deep crescentic. Epigyne: two large oval copulatory openings.

Variation. One female (J4493) from South Hobart has two fine bands across the dorsal abdomen, the bands are pallid and white scales. The other female from Flat Rock (J4198) has an orange brown carapace and a black caput.

Distribution and habitat. Known from eucalypt woodland in south-eastern Tasmania.

Ticopa gen. nov.

Diagnosis. Males differ from those of other Australian Castianeirinae in the combination of the palpal cymbium with a paracymbial spine and bulb with lobular scaly embolic base. Females are distinguished from those of other genera by the wide, black, distinctly enlarged fang setae in combination with the simple bilobed spermathecae, and from *Battalus*, which also may have much stronger fang setae, in the simpler less folded form of the spermathecae.

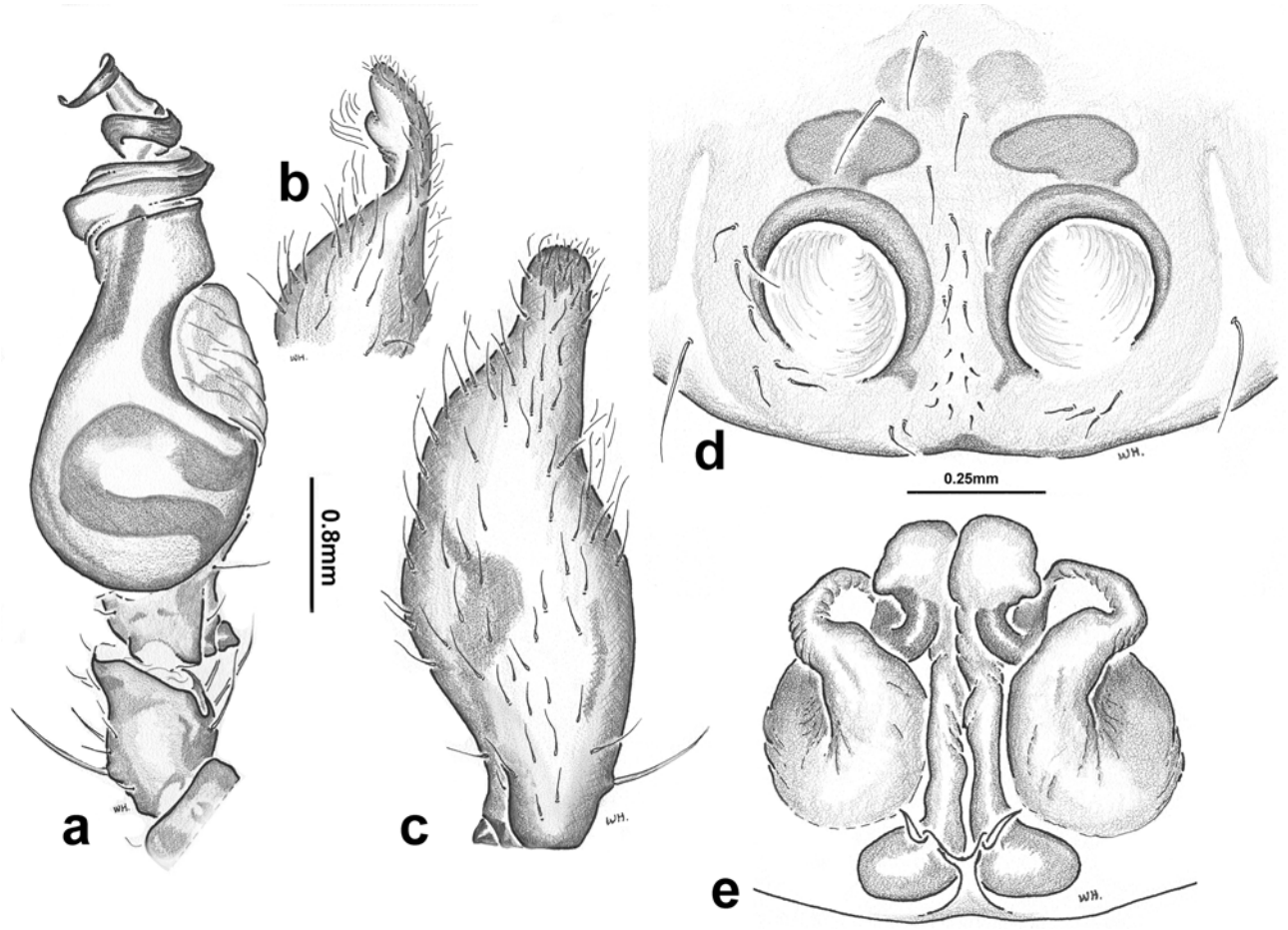


FIGURE 125. *Poecilipta zbigniewi* sp. nov., TMAG J4206: a–c, holotype male, palpal patella and cymbium, ventral view (a), cymbium tip, retrolateral view (b), cymbium dorsal view (c); d, e, allotype female TMAG J4198, epigyne, external (d) and internal (e) views.

Description. Both males and females have boldly marked carapace and legs (Figs 2f, 129a, b). Spines prolaterally on tibiae and metatarsi I and II. Labium wider than long (Fig. 129d). Carapace boldly marked (Fig. 129a, b). Lateral profile of carapace (Fig. 2f): caput arched anteriorly, sloping through slight arch in shallow slope from fovea along posterior declivity; highest point just behind eye group; eyes set behind clypeus edge. Retrolateral face of large chelicerae smooth; females with wide black distinctly enlarged fang setae (Fig. 131b, c). Legs boldly marked (Figs 2f, 129a, b), strongly spinose; feathery hairs and scales absent; femora III and IV lack predistal constricton (Fig. 2f); scopula present on pedal tarsi. Abdominal scutes reduced or absent: in males and some females, small triangular dorsal scute, ventral scute entirely absent in males and females; post-epigastric sclerites absent; tracheal scute a small ridge or cone. Male palpal cymbium with paracymbial spine (Fig. 126a); bulb with lobular scaly embolic base (Fig. 126h). Females with two crescentic (biconcave) fossae externally (Fig. 126c), almost complete circular ridges, leading to large anterior spermathecae connected shortly and simply to smaller basal lobe; paragenital brackets present (Fig. 131e, 132a).

Etymology. The genus name is formed from tiger, alluding to the leg markings (Fig. 2f) and *Copa*; the gender is feminine.

Type species: *Ticopa australis* sp. nov.

Species included. *Ticopa australis* sp. nov., *T. carnarvon* sp. nov., *T. chinchilla* sp. nov., *T. dingo* sp. nov., *T. hudsoni* sp. nov., and *T. longbottomi* sp. nov.

Distribution and Habitat. Known from arid regions throughout Australia, excluding Tasmania.

Remarks. *Ticopa* shows the least apparent modifications to ant-mimicry; in similar species of *Battalus*, regionalisation of dark colour on the head (Fig. 25a–c), e.g., as in *B. diadens*, confers a limited form of mimicry.

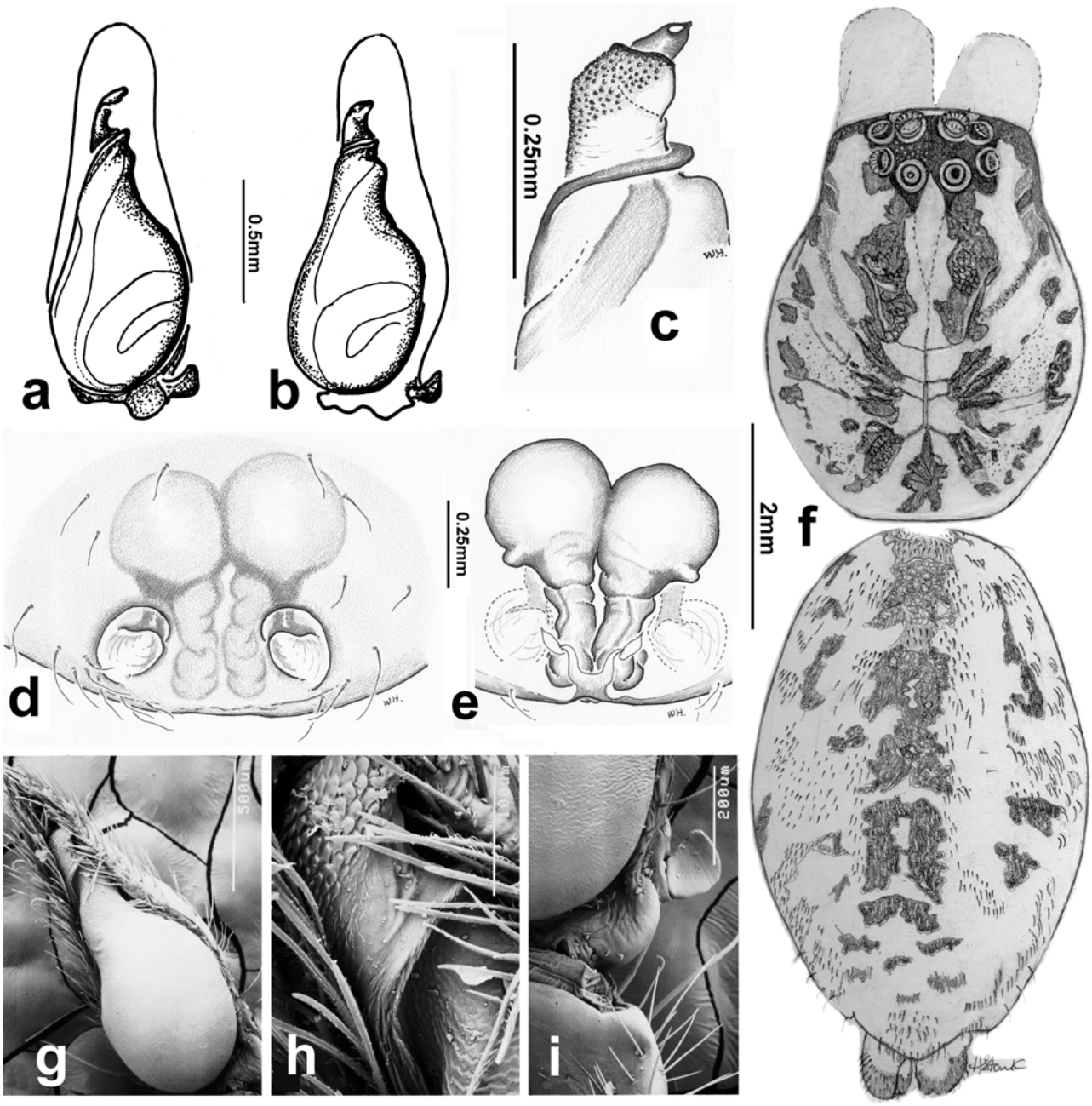


FIGURE 126. *Ticopa australis* sp. nov.: holotype male, QM S31514, a–c: a, b, palpal cymbium and bulb, ventral (a, c) and retroventral (b) views; c, embolus tip, ventral view; d–e, allotype female, QM S31513, epigyne, external (d), internal (e); female, f, habitus, g–i, g, palpal bulb and cymbium, scanning electron micrographs, ventral view; h, embolus tip showing "scales", ventral view; i, paracymbial spine, retrobasally, ventral view.

Key to species of *Ticopa*

Males (unknown for *T. hudsoni* sp. nov. and *T. dingo* sp. nov.)

1. Mottling ventrally on femora I and II subtle or absent . . . . . *T. carnarvon*
   Mottling ventrally on femora I and II strong (Figs 2f, 129a, b) 2
2(1). Mottling ventrally on tibiae I and II strong . . . . . *T. chinchilla*
   Mottling ventrally on tibiae I and II weak or subtle (Fig. 2f) 3
3(2). Median cephalic band wide for its length (Fig. 126f) . . . . . *T. australis*
   Median cephalic band broken at least at fovea (Fig. 129f) . . . . . *T. longbottomi*

Females (unknown for *T. chinchilla* sp. nov.)

1. No enlarged setae on front lobe of chelicerae . . . . . *T. australis*
   Setae enlarged to varying extents on cheliceral lobe (Figs 128 e, f, 129c, 131b, c) 2
2(1). Setae on chelicerae lobe short, strong, spine-like 3
   Setae on chelicerae lobe elongate (Fig. 134e). . . . . *T. longbottomi*
3. 6–8 very large thick serrate setae (Fig. 131b, c) on cheliceral lobe in two lines . . . . . *T. dingo*
   3–4 thick and serrate setae on cheliceral lobe (as in *T. dingo*, Fig. 131b). 4
4(3). Spermathecae viewed externally clearly strongly folded posteriorly (Fig. 133c). . . . . *T. hudsoni*
   Spermathecae viewed externally hardlyfolded posteriorly (Fig. 127e) . . . . . *T. carnarvon*

***Ticopa australis* sp. nov.**
(Figs 2f, 126a–i. Map 84)

Material. **South Australia**: holotype ♂, Renmark, 32 km N, 33°53'S, 140°44'E, chenopod scrubland, malaise trap, 2–29 Mar 1995, K. Pullen, QM S31512.

Paratypes: **South Australia**: allotype 1♀, 2–29 Mar 1995, QM S31513; 1♀, malaise trap, 1–29 Mar 1995, QM S39284; 1♂, Calperum Homestead, 65 km NNW, 33°31'S, 140°24'E, pitfall & intercept traps, 1–29 Mar 1995, K. Pullen, QM S77467. Renmark, 32 km N, 33°53'S, 140°44'E, mallee, malaise trap, K. Pullen: 1♀, 7 Jun–6 Jul 1995, QM S31607; 1♂ 1♀, 2–29 Mar 1995, QM S31514; 1♀, 29 km south of Moonarie Homestead, Yardea Station, 32°13'20"S, 135°49'20"E, 3–4 Oct 1988, D. Hirst, SAMA NN8161. **Western Australia**: 1♂, Woodleigh Station (WO5), 26°11'45.3'S, 114°25'23.6"E, 12 Jan–17 May 1995, wet pitfalls, P. West *et al.*, WAM T74028; 1♀, Trayning, 31°07'S, 117°48'E, Dec 1988–Jan 1989, A. Dugand, WAM T74027. **New South Wales**: 1♀, White Cliffs, 30°51'S, 143°05'E, on seat in caravan park, 4 May 1992, A.F. Longbottom, WAM T74029. **Queensland**: 1♀, Windermere, near Glenmorgan, 27°17'S, 149°45'E, pitfall, Dec 90–Sep 91, R. Raven, D. Smyth, QM S32636.

Diagnosis. Males differ from those of all other species by the embolus tip which appears folded (Fig. 126a) and females differ from that of *T. hudsoni* sp. nov. in the smaller, almost indistinct accessory lobe on the spermathecal head (Fig. 126d).

Etymology. The species epithet refers to the southern distribution of the species.

Description holotype QM S31512

Carapace 3.35 long, 2.40 wide. Abdomen 2.91 long, 1.85 wide. Total, 6.4.

Colour: carapace brown orange with bold blotching along lateral submargin and even darker brown areas paramedially and behind fovea, chelicerae red brown, legs yellow with 20–30 large brown spots on ventral femora; two brown bands on tibiae, all brown; metatarsi and yellowish tarsi; abdomen with triangUlar orange brown scute over central brown band flanked by two large pallid areas and mottled brown laterally, venter fawn; chelicerae, maxillae and labium red brown, sternum and coxae brownish yellow. Carapace: cover of fine translucent scaly hair, three long black bristles behind eyes. Eyes: AME *ca*. 2x ALE, *ca.* 1.5 x PME and PLE. From in front, silver ALE set lower than AME. Chelicerae: robust, distal lobe indistinct; fang groove long; dentition 2P, 2R. Legs: tibial spines (I and II) short not overlapping, longer on metatarsi; all trochanters with shallow notches; erect scopuliform hairs on tarsi I–IV divided by two lines of strong setae on III and IV. Spines: I: fe pv1 long p2d2r1; pa 0; ti p2v2.2.2.2; me v2.2. II: fe pv1p2d3r1; pa 0; ti p2v2.2.2.2; me p2v2.2. III: fe p2d3r3; pa 0; ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p3d3r1; pa 0; ti p2d1r2v2.2; me p3r3v1.1.1.1.3. Palp: fe p1d2 (no ventral); pa p1d2 (all weak); ti p2 basal d1. Claws: tufts higher than enclosed claw. Abdomen: scutes: dorsal, with small oval scute in apical 0.2; genital, sclerotised; tracheal, a wide hirsute ridge. Palp: tibia about as wide as long, with two long probasal spines; cymbium long with narrow basal margin; retromargin retreats dorsally; apical cone short; retrolateral cymbial process like a strong wing; bulb, sperm duct prolateral to base then folds upward (inward and back down in depth transverse); embolus broad with folded tip and transverse collar.

Female allotype QM S31513. Like ♂ except as follows:

Carapace 3.70 long, 2.64 wide. Abdomen 3.89 long, 2.33 wide. Total, 7.9.

Chelicerae: low fang mound with long curved bristles from fang base. Spines: metatarsus II ventrally with 2–3 pairs long spines; palp, tarsus p2 (basal) d1, 3 small thorn-like ventrally near claw. Claws: with 3–4 teeth; palpal claw long gently curved bare. Abdomen: scutes absent. Spinnerets: PMS with two long cylindrical spigots each, PLS with three. Epigyne: large; two large semicircular hoods basally, each surrounds depression with distinct gonopore in inner anterior corner.

Distribution and Habitat. Known from desert and sparely vegetated areas in Western Australia, Renmark, South Australia, Western New South Wales and south western Queensland.

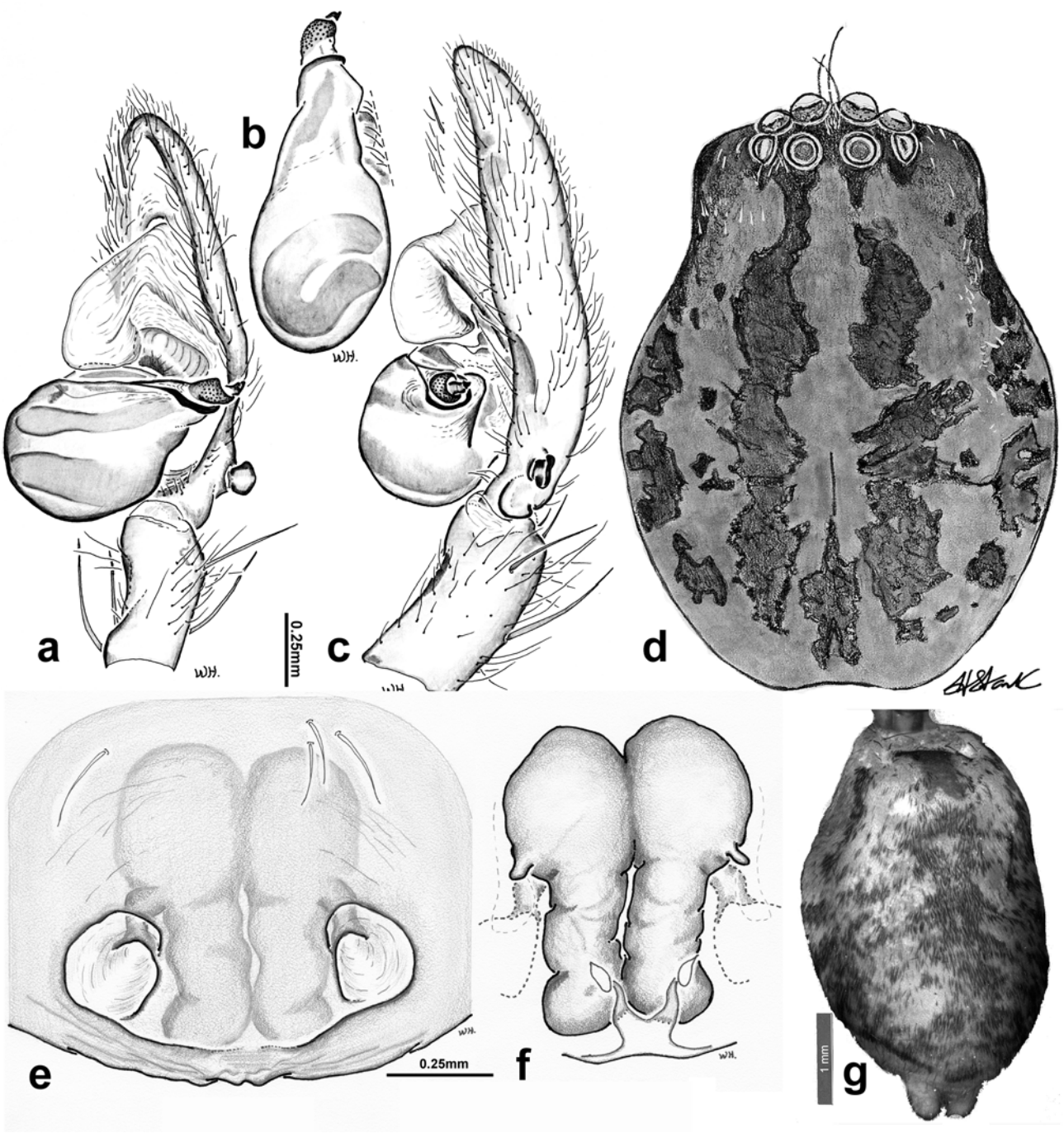


FIGURE 127. *Ticopa carnarvon* sp. nov.: a–d, holotype male WAM 98/1625, palpal tibia, cymbium and bulb, ventral (a, b) and retrolateral (c) views; d, carapace, dorsal view; e–f, allotype female WAM 98/1626, epigyne, external (e) and internal (f) views; g, abdomen, dorsal view.

***Ticopa carnarvon* sp. nov.**
(Figs 127a–g, 128a–f, 132c. Map 85)

Material. **Western Australia**: holotype, ♂, Bush Bay, 25°07'03.3"S, 113°48'22.5"E, 16 Jan–23 May 1995, BB2, wet pits, P. West *et al*., WAM/CALM Carnarvon Survey, WAM 98/1625. Paratypes: **Western Australia**: 1♀ (allotype), taken with holotype, WAM 98/1626; 1♂, same data but 25°07'54.4"S, 113°46'05.1"E, 23 May–23 Aug

1995, N. Hall, WAM 98/1627; 1♂, Woodleigh Station, 26°11'45.3"S, 114°25'23.6"E, 12 Jan–17 May 1995, WO5, wet pits, P. West *et al*., WAM/CALM Carnarvon Survey, WAM 98/1628.

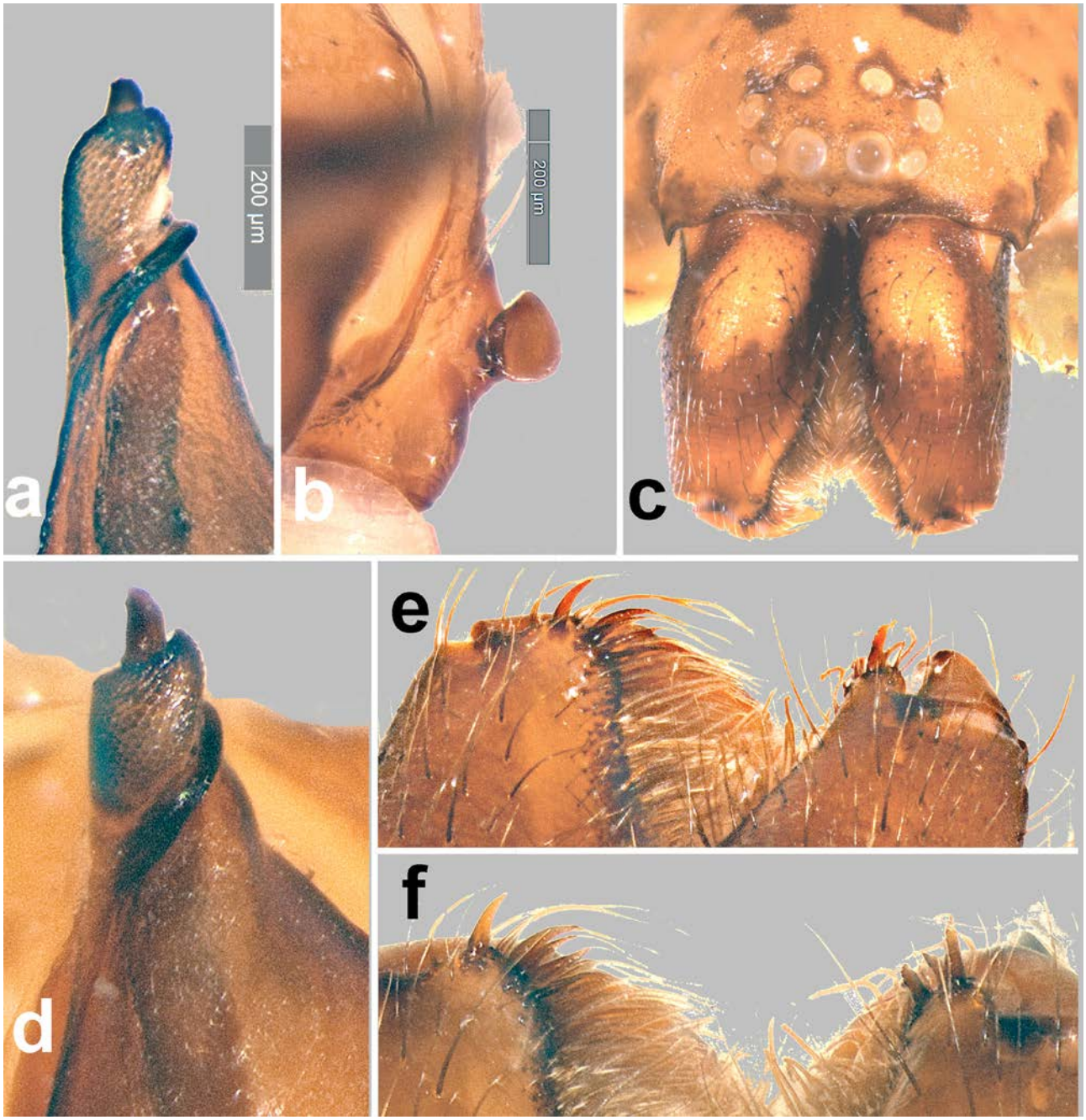


FIGURE 128. *Ticopa carnarvon* sp. nov.: a, b, d, holotype male 98/1625: a, d, male embolus, ventral (a) and retrolateral (d) views; b, paracymbial spines, ventral view; c, e, f, allotype female WAM 98/1626: c, carapace and chelicerae, anterior view; e, f, cheliceral apex, oblique (e) and anterior (f) views.

Diagnosis. Males differ from those of *T. longbottomi* sp. nov. in that the paracymbial spine is noticeably wider distally, with longer distal extension of plate (Fig. 128b); also *T. carnarvon* sp. nov. has larger dark markings on the carapace (Fig. 127d) but *T. longbottomi* sp. nov. has stronger dark spotting on the ventral femora. Females differ from those of *T. longbottomi* in the strong fang setae and ridge above them (Fig. 128e, f).

Etymology. A noun in apposition taken from the type-locality.

Description Holotype male WAM 98/1625

Carapace 4.00 long, 2.69 wide. Abdomen 4.38, 1.88 wide. Total length 8.7.

Colour: carapace dark orange brown with brown markings: broad irregular lobulate marks around margins,

two long sinuous bands on caput, lateral and posterior of fovea large irregular patches; chelicerae dark brown with orange brown ovoid area medially; eyes not "masked"; abdomen contracted away from cuticle; dorsal tongue-like scute for half length, ventrally pallid with brown marks; legs yellow brown with small brown areas ventrally on femora around spine bases and bands on distal femora; maxillae and labium red brown, sternum orange brown, coxae all yellow brown. Carapace: with light cover of large black feathery hairs on brown thoracic region; cuticle finely pustulose; lateral margins not serrate and without sharp ledge; shallow pre-foveal saddle; fovea short, deep, on ridge not plateau; striae indistinct, masked by pattern. Eyes: AME clearly largest; ALE about smallest. Chelicerae: robust, vertical; low, rounded, glabrous lobes anterior and posterior to fang base; dentition formula: 2R, 2P; fangs long, tips well behind maxillae; furrow almost vertical, long. Maxillae: curved rounded ridge sloping steeply retrolaterally, apex rounded, small tear-shaped basal groove. Labium wider than long with short lunate depressions at basilateral margins. Sternum widely cordate with intercoxal extension at I/II; low profile with cover of few long erect bristles and many short brown hairs. Legs: coxae with three long midventral bristles in line for width and dividing coxa; RCH absent; trochanters with wide, symmetrical V-shaped notch, deeper distally; intercoxal processes strong on retrolateral edge of I–IV; light cover of small brown feathery hairs; scopula weak on all tarsi; sparse in distal half of metatarsi I and II. Spines: some long but none overlapping; proventral on femur I very long. I: fe pv1p2d3r1; ti p2v2.2.2.2; me v2.2. II: fe pv1p2d3r1; ti p2v2.2.2.2; me p2v2.2. III: fe p3d3r2; ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r1; ti p2d1r2v2.2.3; me p3r3v2.2.3. Palp: fe p1d2; pa (bristles) p1d1.1; ti p2 basal, d1. Abdomen: dense cover of brown feathery hairs; dorsal scute narrow with jagged margins, for anterior half; genital scute sclerotised back over booklungs; tracheal scute wide, oval with wide distal ridge. Palp: tibia with light proventral depression; cymbium: almost symmetrical from above; lateral margins narrow, prolaterally with light bush of long bristles over distal half of bulb, anterior cone grooved to tip but gradual and shallow; retrobasally with rounded margin above which is truncate scooped paracymbial spine on raised mound; weak scopula dorsally for distal fifth; bulb short, subtegulum not evident laterally on either side; embolic portion with basal narrow, spiralled collar becoming rugose, long and lobular with wide apex set above it; spermatic duct traced back from embolus twists under bulb, recurves and diagonally folds through the retrobasal tegulum.

Allotype female WAM98/1626. As ♂ except as follows:

Carapace 4.06 long, 3.19 wide. Abdomen 4.08 long, 2.50 wide. Total length, 13.4.

Colour: carapace like ♂ but background fawn with large white feathery hairs making markings bolder. Abdomen dorsally pallid gray with darker zones formed by large dark feathery hairs in medial foliate band and narrow chevrons forming paler pairs of ovoid patches; ventrally fawn. Abdominal dorsal scute small dark rectangular. Femora-metatarsi yellow brown with 2–3 irregular dark bands of black feathery hairs. Chelicerae: with distinct squared anterior lobe bearing 3–4 short thick curved spines. Fangs and grooves shorter. Legs: trochantera with shallow but distinct notches. Feathery hairs small on dorsal femora. Scopula denser on metatarsi and tarsi I, II. Spines: also with long proventral spine on fe I. I: fe pv1p2 d3r1; ti p2v2.2.2.2; me p1v2.2. II: fe pv1p2d3r1; ti p2v2.2.2.2; me p2v2.2. III: fe p3d3r2; pa d1; ti p2d1r2v2.2.1 me p3r3v2.2.2. IV: fe p2d3r1; pa d1w; ti p2d1r2v2.2.2; me p3r3 v2.2.3. Palp: fe p1d2; pa p1d1.1; ti p2 basal, d1; ta p2 basal r1 basal. Palpal claw: long, dentate. Abdomen: post-epigastric sclerites short, rounded, open; tracheal spiracle with distinct sclerotised and semicircular scute. Epigyne: a broad open plate with two wide round fossae basally ectally bordered by lunate ridge; internally, a wide funnel-shaped duct leads to base of large, long, roughly reniform spermatheca narrowing through transverse creases to back.

Distribution. Known only from Bush Bay and Woodleigh Station, Carnarvon Ranges, NW Western Australia.

Ticopa chinchilla sp. nov.

(Figs 129a, 130a–f. Map 86)

Material. **Queensland**: holotype, ♂, Braemar State Forest, 27°12'S, 150°50'E, pyrethrum knockdown, 5 Feb 1980, G. Monteith, QM S29499.

Diagnosis. The male differs from those of *T. australis* sp. nov. in the lobular embolic tip. Female unknown.

Etymology. A noun in apposition taken from the type-locality.

Description holotype QM S29499

Carapace 4.69 long, 3.50 wide. Abdomen 3.38 long, 2.50wide. Total length 8.6.

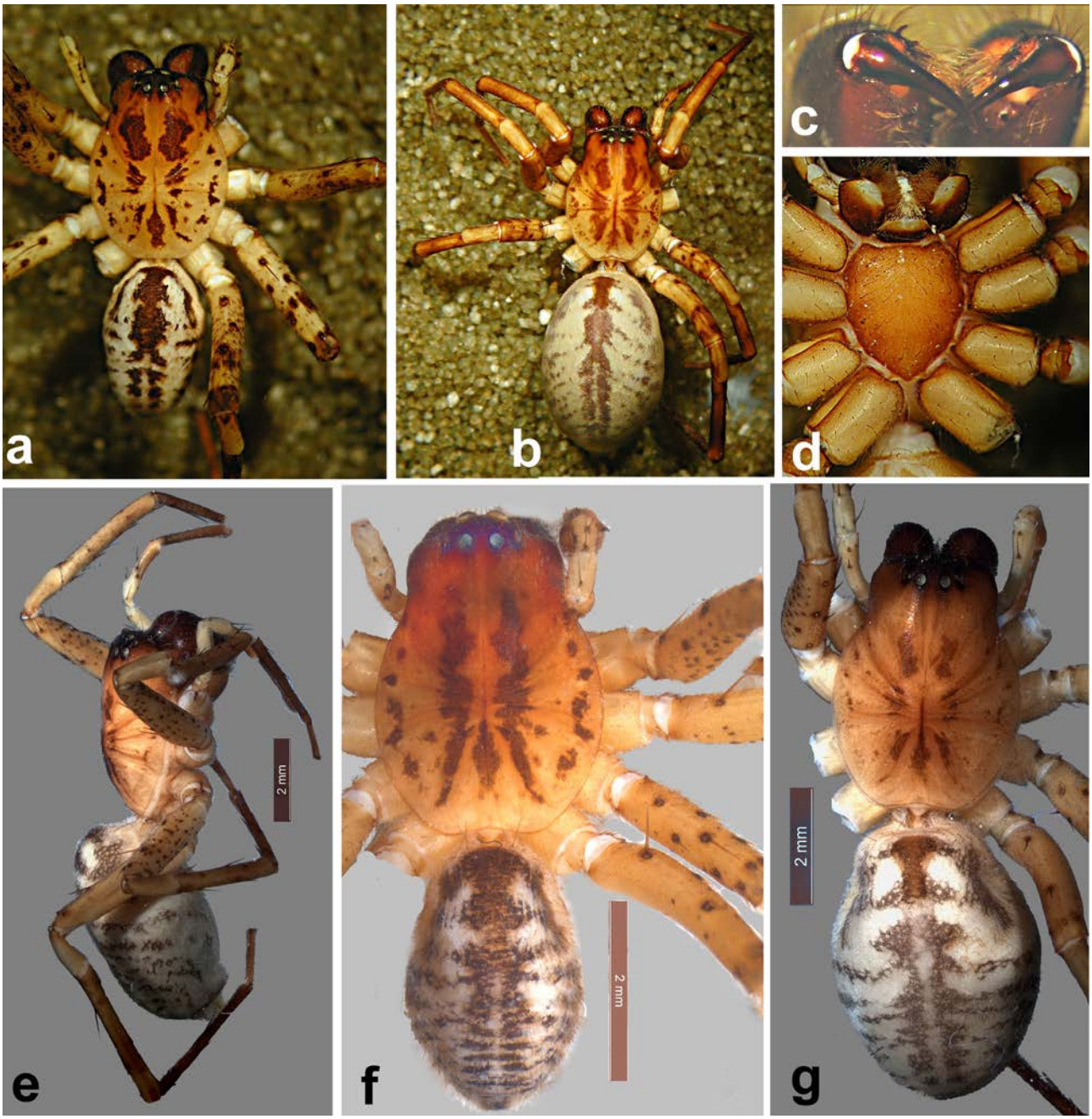


FIGURE 129. *Ticopa* spp. nov.: a, *Ticopa chinchilla* sp. nov., holotype male, QM S29499, habitus. b–d, *Ticopa hudsoni* sp. nov., holotype female QM S31531; b, habitus; c, cheliceral tip, ventral view; d, coxae, sternum, maxillae and labium, ventral view; e–g, *Ticopa longbottomi* sp. nov., e, g, female allotype, lateral (e) and dorsal (g) views; f, male holotype, dorsal view.

Colour: carapace yellow brown with brown markings, continuous irregular around anterior carapace, two large Australia-shaped marks on caput, lateral of fovea small irregular patches, long medial patch flanked by two broken curved areas on back slope; irregular small areas submarginally across striae; chelicerae dark brown with orange brown Vee medially; eyes with brown masks; abdomen dorsally yellow brown with broken medial band for length and diagonal brown bands, ventrally pallid with brown marks; legs yellow brown with small brown areas ventrally on femora around spine bases and bands on distal femora, basal and subdistal tibiae and metatarsi. Carapace: with light cover of large feathery hairs on brown thoracic region, white on caput; cuticle more or less smooth; lateral margins not serrate and without sharp ledge; no pre-fovea saddle; fovea on ridge, not plateau; striae distinct shallow grooves; one long bristle below AME and horizontal under ALE. Eyes: AME clearly largest, not on tubercle; ALE about smallest, not on tubercle with PLE. Chelicerae: small, vertical; fang shield indistinct; one

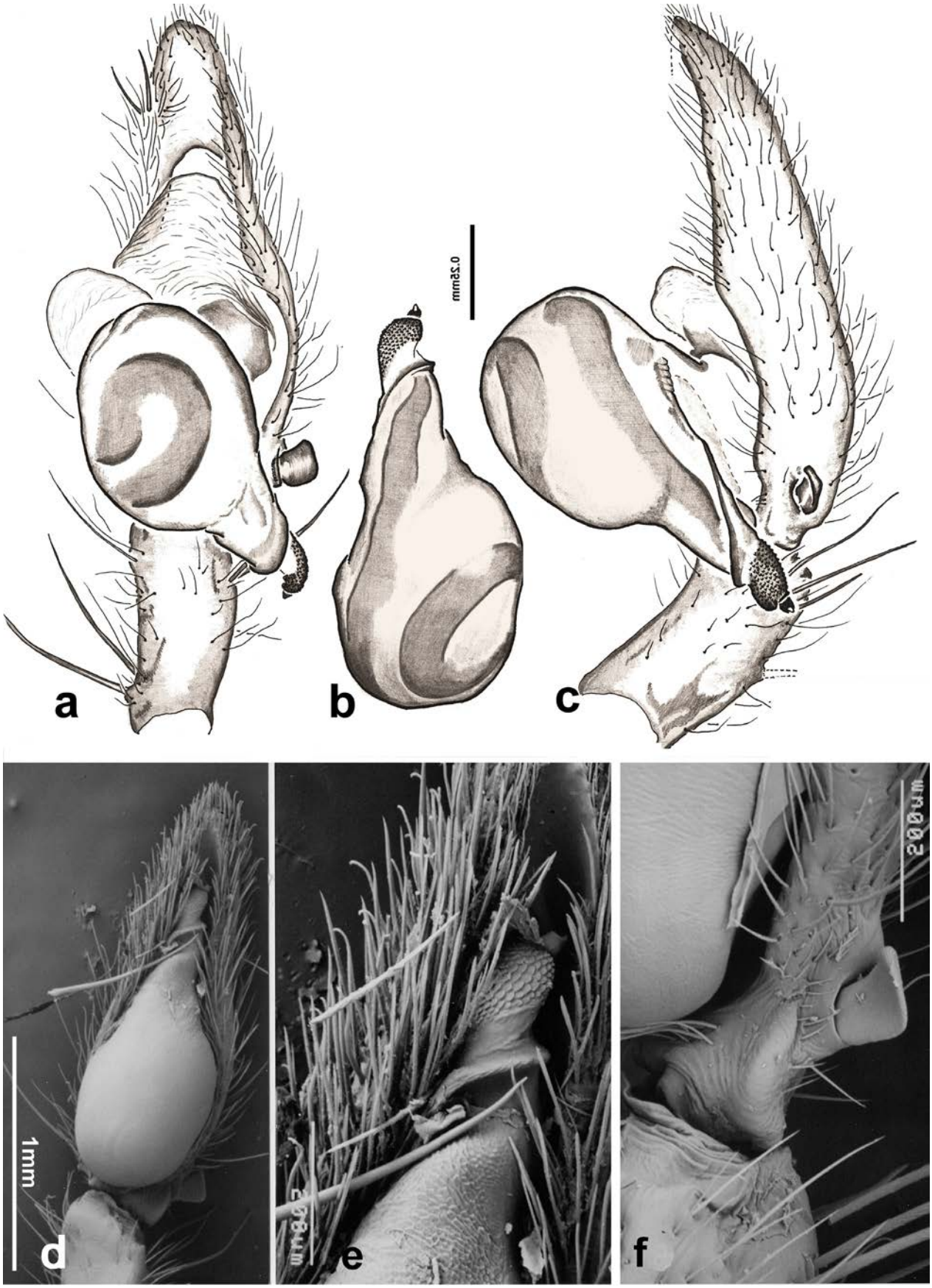


FIGURE 130. *Ticopa chinchilla* sp. nov., holotype male, QM S29499, palpal tibia, cymbium and embolus (mirrored), a–c: ventral (a, b) and retrolateral (c) views; d–f, scanning electron micrographs; d, bulb, ventral view, e, embolus tip showing "scales"; f, paracymbial spine, ventral view.

large and one small basal tooth on promargin, two large on retromargin; furrow almost vertical, short; retrobasal ridge distinct, aspinose. Maxillae: with low glabrous mound basally; outer edge convex, apex rounded. Labium wider than long. Sternum: widely cordate with weak intercoxal extensions at I/II, II/III; weak pre-coxal sclerites on II and III; low profile with cover of long erect bristles and short brown hairs. Legs: coxae with midventral bristle; no RCH; trochanter IV with asymmetrical notch deeper distally, only distal process distinct on I and III; large brown feathery hairs, especially dense around brown areas on legs; scopula distinct on all tarsi, divided widely on IV; in distal half of metatarsi III and IV. Spines: not overlapping on tibiae and metatarsi I and II. I and II: fe pv1p2d3r1; ti p2v2.2.2.2; me p1v2.2. III: fe p3d3r3; ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r1; ti p2d1r2v2.2.3; me p3r3v2.1.3. Palp: fe p1d2; pa (bristles) p1d1.1; ti 2 bristles basal. Abdomen: light cover of brown feathery hairs. Dorsal scute narrow for anterior third; genital `scute' not sclerotised except in genital area. Tracheal scute wide, oval, with wide distal ridge. Palp: tibia with lightly proventral depression, not forming tibial keel or distal ridge; cymbium: lateral margins narrow, prolaterally with dense bush of long bristles for distal half of bulb, anterior cone grooved almost to tip but gradual and shallow; retrobasally with rounded margin above which a flat shovel-like paracymbial spine on raised mound. Distinct scopula dorsally for distal third; bulb short, subtegulum not evident laterally on either side. Embolic portion with basal narrow spiralled collar becoming rugose long and lobular with wide apex set above it.

Distribution and habitat. Known only from Braemar State Forest, south-eastern Queensland, an area of open forest bushland.

***Ticopa dingo* sp. nov.**
(Figs 131a–f, 132a, b, e. Map 87)

Material. **Queensland**: holotype ♀, Blackdown Tbld, via Dingo, 23°50'S, 149°02'E, 1–6 Feb 1981, R.J. Raven, QM S29381. Paratypes: **Queensland**: 1♀, Lake Broadwater, 27°21'S, 151°06'E, open eucalypt forest, pitfall, 22 Apr–12 Jun 1986, QMP & M. Bennie, QM; 1♀, Girraween NP, under eucalypt bark, 4–6 Sep 1992, P. Lawless, QM S56858.

Diagnosis. Females differs from that of *T. hudsoni* sp. nov. in the more extensive brown areas on the carapace and abdomen (Fig. 131a) and very long spines on tibiae and metatarsi I and II. Male unknown.

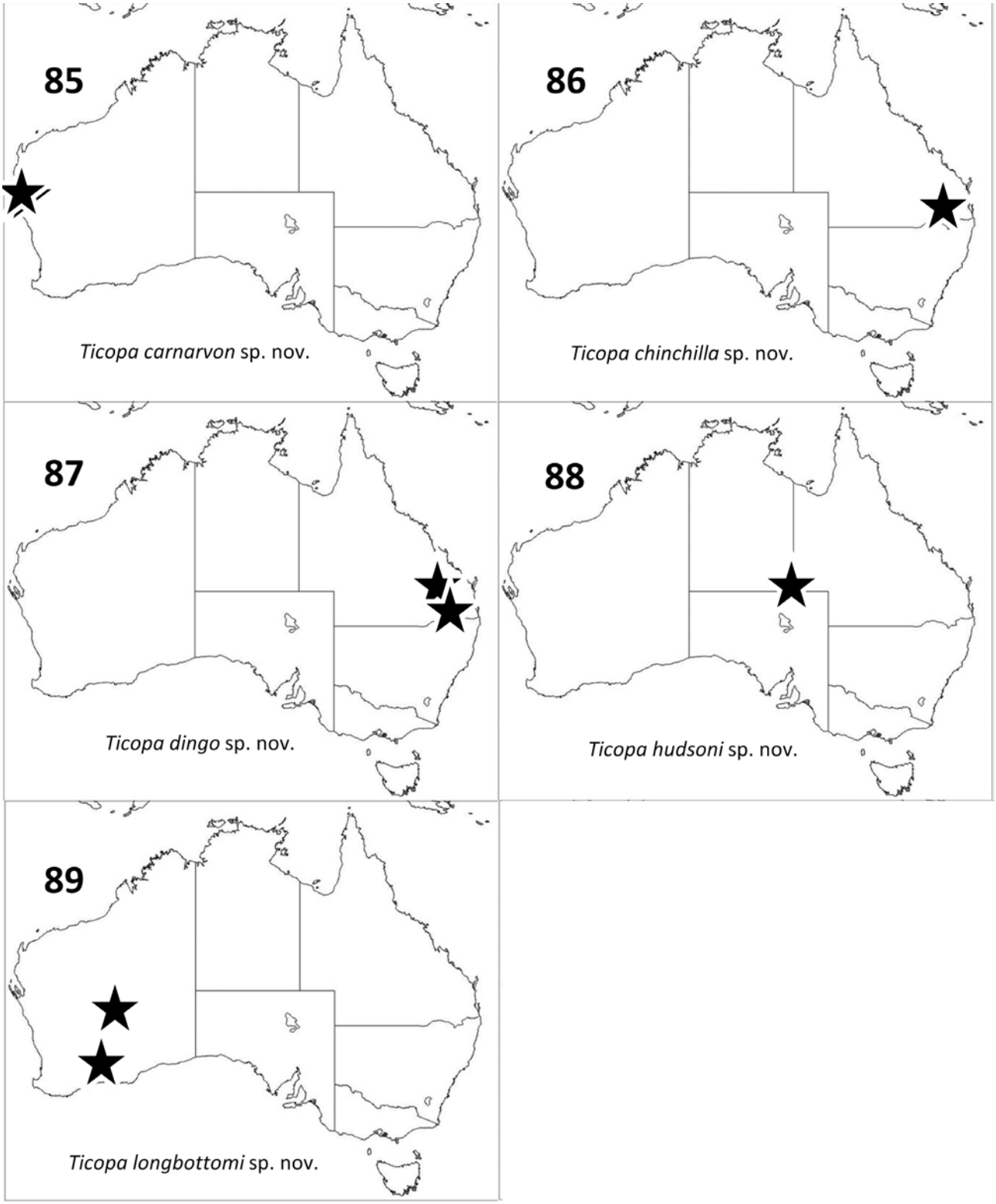
Etymology. The species epithet is a noun in apposition from the township near the type locality, Dingo.

Description holotype female QM S29381

Carapace 3.75 long, 2.63 wide. Abdomen 4.81 long, 3.56 wide. Total length 8.6.

Colour: carapace orange brown with wide brown margins, narrow irregular band then brown central region; chelicerae dark brown; eye group dark brown; abdomen dorsally blue black with eight paired irregular pallid patches; ventrally pallid. Sternum, maxillae, labium and coxae yellow brown; legs (IV missing) yellow brown with brown distal half of femora I–III and patellae brown and dark shadows on tibiae and metatarsi. Carapace: distinct pre-foveal saddle with raised caput; fovea on cone ridge; white feathery hairs on lateral margins and beside eye group; margins with short ridge or shelf with short horizontal setae in line on low mounds. Eyes: back row slightly wider than front. Chelicerae: fang shield distinct rounded with short curved thick modified black setae vertically: three fine basally, *ca.* seven thick distally; each setae flattened with smooth ectal edge and deeply serrate distal edge; two teeth on both margins, basal smaller on promargin. Sternum: weak intercoxal extensions at I/II. Legs: trochanters I–III with shallow asymmetrical notch; large feathery hairs on femora to metatarsi. Spines: very long erect on I and II; long and overlapping on tibiae and metatarsi I and II. I: fe pv1p2d3r1; ti p2v2.2.2.2; me p2v2.2. II: fe pv1p2d3r1; ti p2v2.2.2.2; me p2v2.2. III: fe p3d3r3; ti p2d1r2v2.2.1; me p3r3v2.2.3. IV missing. Palp: fe p1d2; pa p1; ti p2d1; ta p1v2w. Palp: claw with 2–3 small teeth. Abdomen: small, trianguloid dorsal scute only anterior; genital scute with unsclerotised ones laterally; tracheal scute subquadrate with wide distal ridge. Epigyne: two fossae set anteriorly.

Distribution and Habitat. Known from open eucalypt forest on Blackdown Tableland, via Dingo, mideastern Queensland south to Lake Broadwater and Girraween, southeastern Queensland.



MAPS 85–89. Records of Australian species of *Ticopa* gen. nov.

***Ticopa hudsoni* sp. nov.**
(Figs 129b–d, 132d, 133a–d. Map 88)

Material. **Queensland**: holotype ♀, Cooper Ck, Birdsville track, 28°30'S, 138°47'E, 16 Apr 1976, P. Hudson, QM S31531. Paratype: **New South Wales**: 1♀, Narrabri, 30 Apr 1988, D. Hirst, SAMA N19997934.

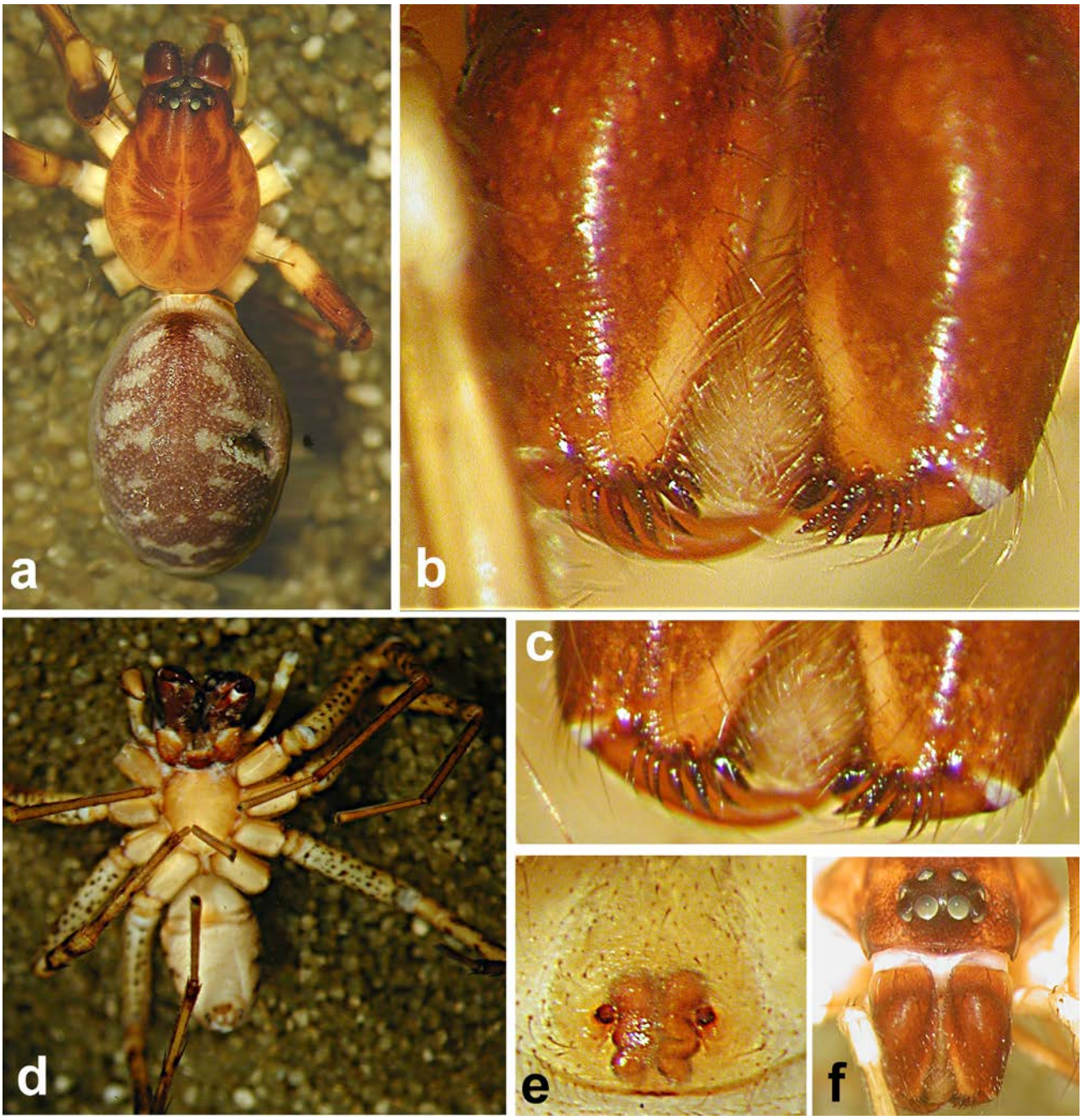


FIGURE 131. *Ticopa dingo* sp. nov., holotype female, QM S29381: a, habitus; b, c, chelicerae, anterior view; d, venter; e, epigyne, external; f, carapace, anterior view.

Diagnosis. Females differ from those of *T. australis* sp. nov. in having a minute palpal claw, and having large spines on the cheliceral process (Fig. 133b) and in the larger accessory lobe (Fig. 133d) on the spermathecal head. Male unknown.

Etymology. The species epithet is in honour of the collector and scientist, Dr Peter Hudson, South Australian Museum.

Description holotype female QM S31531

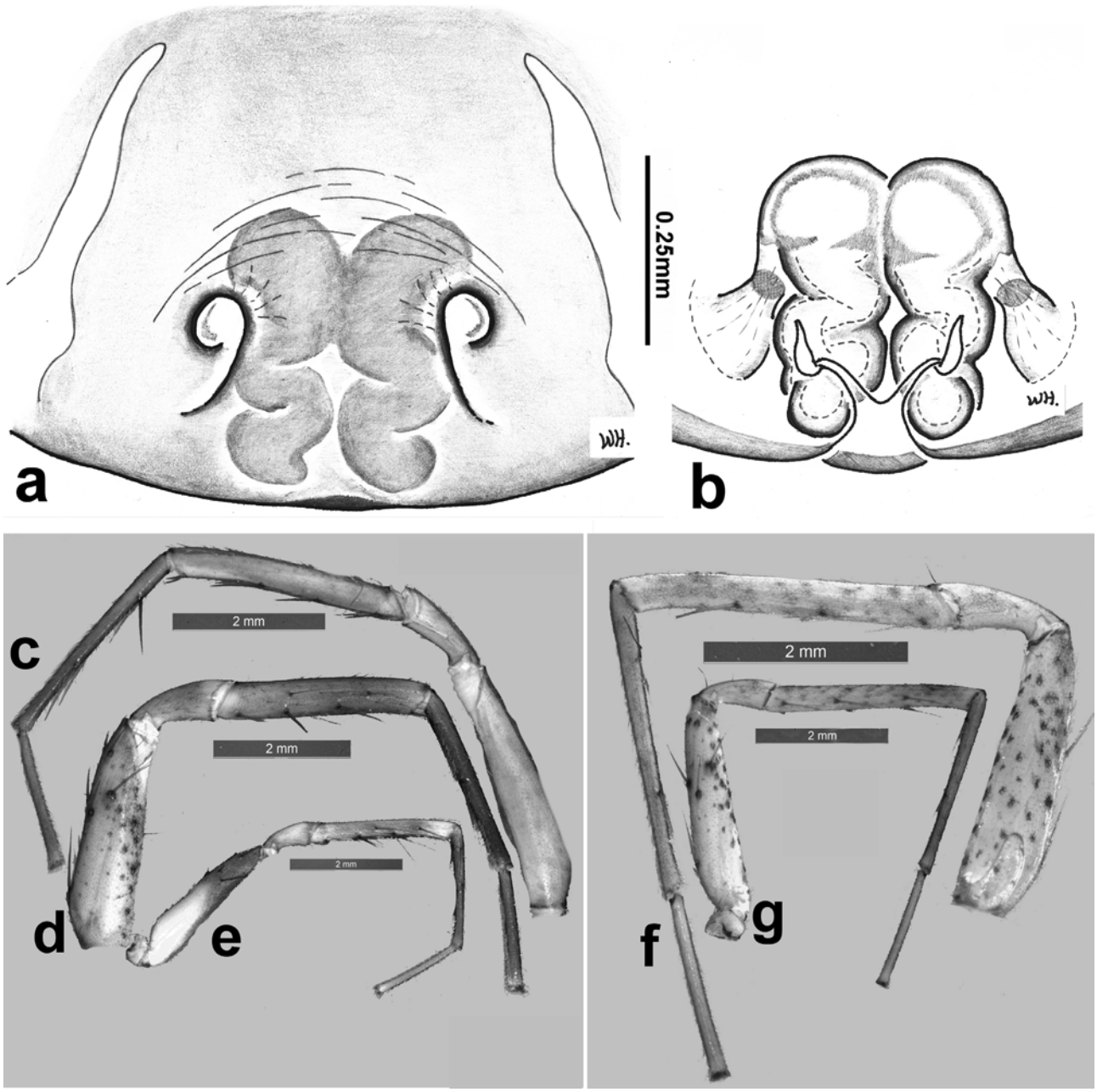


FIGURE 132. *Ticopa* spp.: a, b, e, *T. dingo* sp. nov., holotype female, QM S29381, epigyne: a, external; b, internal; c–g, leg I showing mottling, c, *T. carnarvon* sp. nov., holotype male; d, *T. hudsoni* sp. nov., holotype female; e, *T. dingo* sp. nov.; f, g, *T. longbottomi* sp. nov., retrolateral (f) and prolateral (g) views.

Carapace 4.63 long, 3.31 wide. Abdomen 6.50 long, 4.19 wide. Total length 11.3.

Colour: carapace orange with bold brown markings paramedially (broad) and in broken semicircles along margins; chelicerae dark brown; abdomen dorsally pallid gray with irregular dark band medially with series of fine diagonal bands laterally, medial band with central pallid band, ventrally of dirty yellow with brown flecks posteriorly. Abdominal dorsal scute small, dark, triangular and small orange brown scute in semicircle up to spiracle; sternum orange brown, maxillae and labium darker, coxae yellow brown; femora yellow brown with brown spots, other segments red brown. Chelicerae: with distinct squared fang shield bearing 3–4 short thick curved spines; two similar teeth on retromargin, one small and larger tooth on prolateral edge of short transverse margin. Legs: trochanters with shallow but distinct notches; feathery hairs small on dorsal femora. Scopula on metatarsi and tarsi I–III. Spines: I: fe pv1p2d3r1; ti p2w v2.2.2.2; me v2.2 long. II: fe pv1p2d3r1; ti p2v2.2.2.2; me p1v2.2 long. III: fe p3d3r2; pa d1w; ti p2d1r2v2.2.1; me p3r3v2.2.3. IV: fe p2d3r1; ti p2d1r2v2.2.1; me p3r3v2.2.3. Palp: fe p1d2; pa p1d1; ti p2 basal d1; ta p2r1, all basal. Palpal claw: minute, if present. Tracheal spiracle: with

distinct sclerotised and semicircular scute. Epigyne: as for genus, but with a larger accessory lobe on the the spermathecal head.

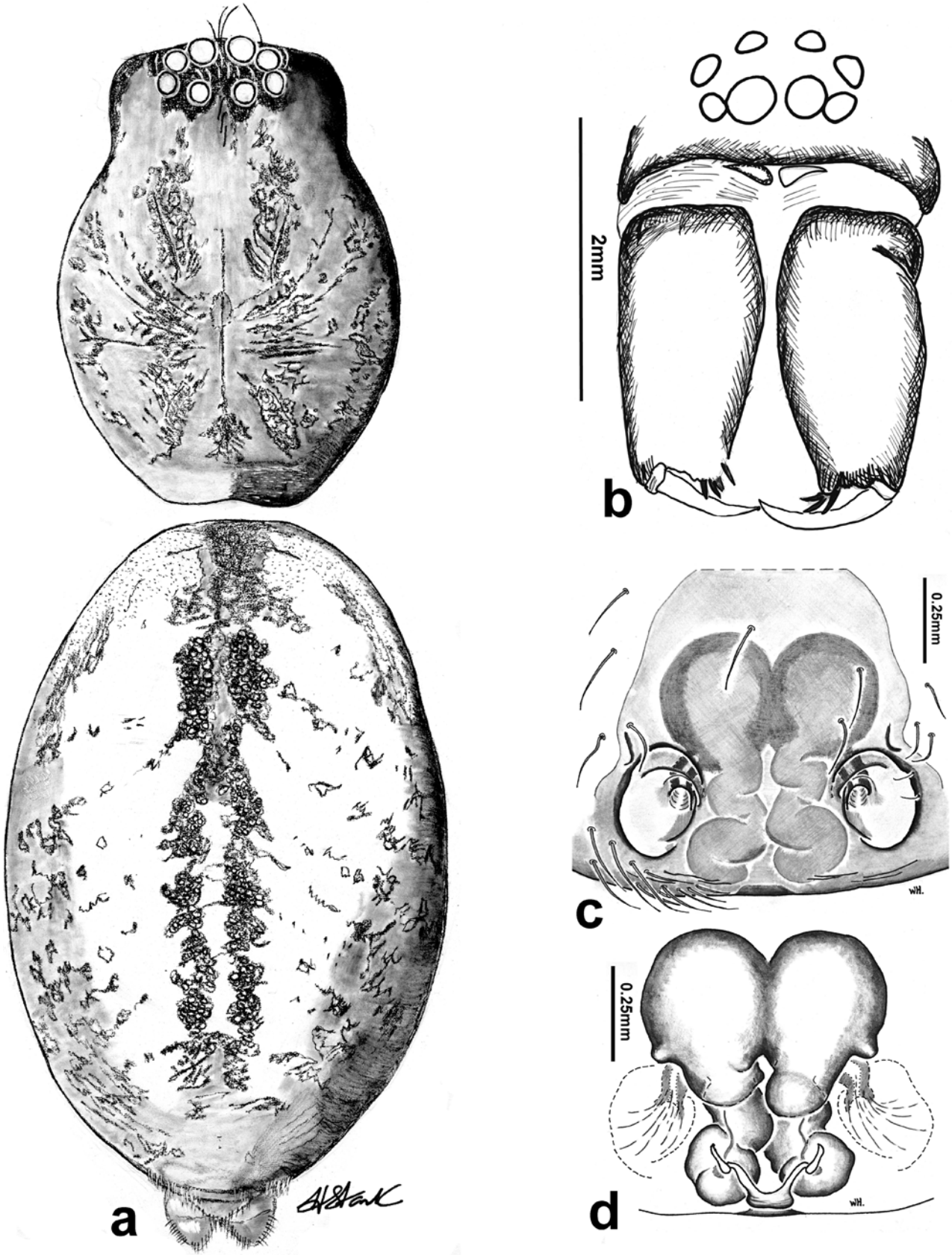


FIGURE 133. *Ticopa hudsoni* sp. nov., holotype female, QM S31531: a, habitus; b, carapace and chelicerae, anterior view; c, d, epigyne, external (c) and internal (d).

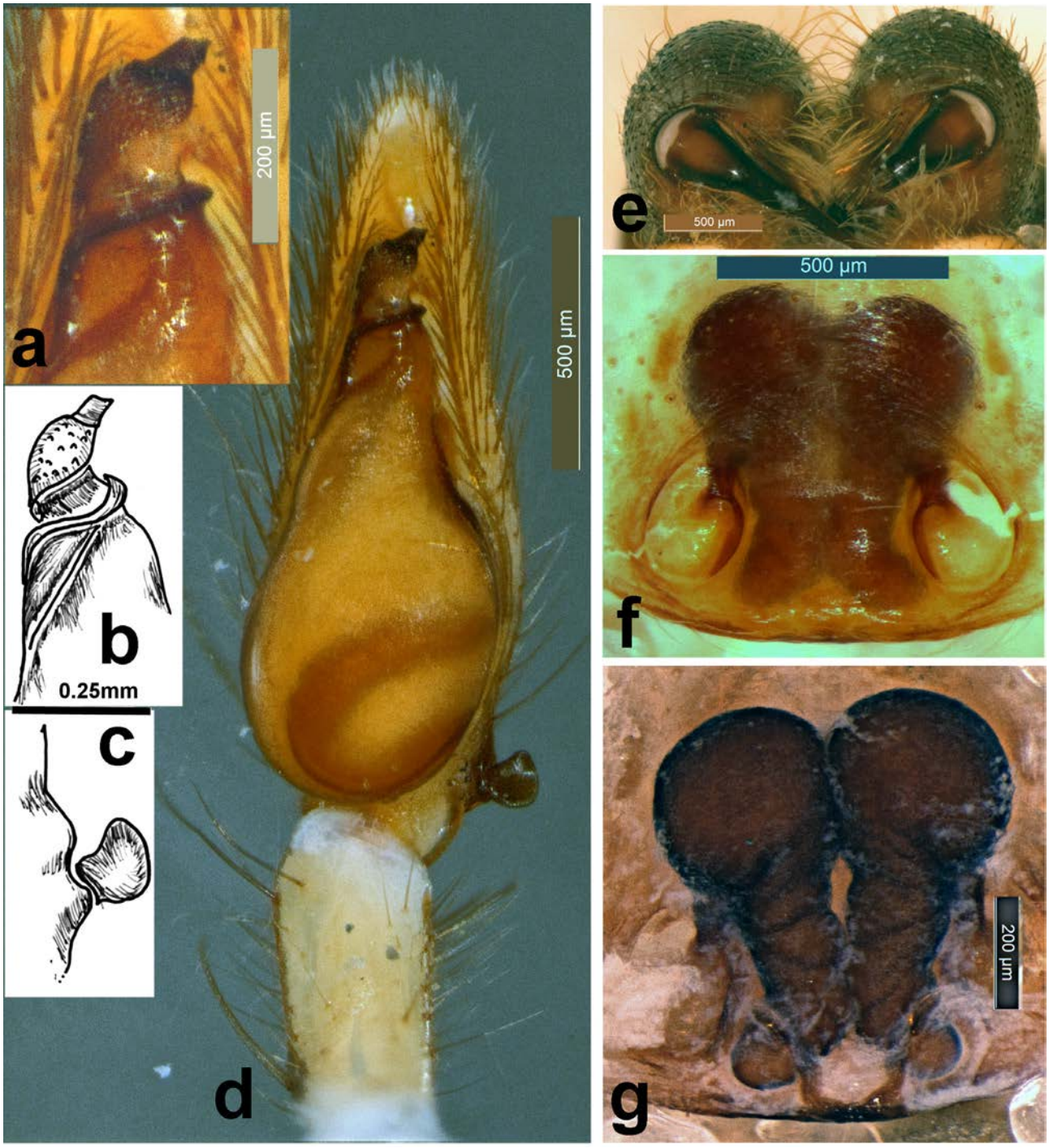


FIGURE 134. *Ticopa longbottomi* sp. nov.: a–d, holotype male, WAM 98/1629: a, b, embolus tip, ventral view; c, paracymbial spine, ventral view; d, palpal tibia, cymbium and embolus, ventral view; e–g, allotype female WAM 98/1633; e, chelicerae, ventral view; f, g, epigyne, external (f) and internal views (g).

Distribution and Habitat. Known only from a xeric area dominated by spinifex at Cooper Ck, Birdsville track, south western Queensland and midwestern New South Wales at Narrabri.

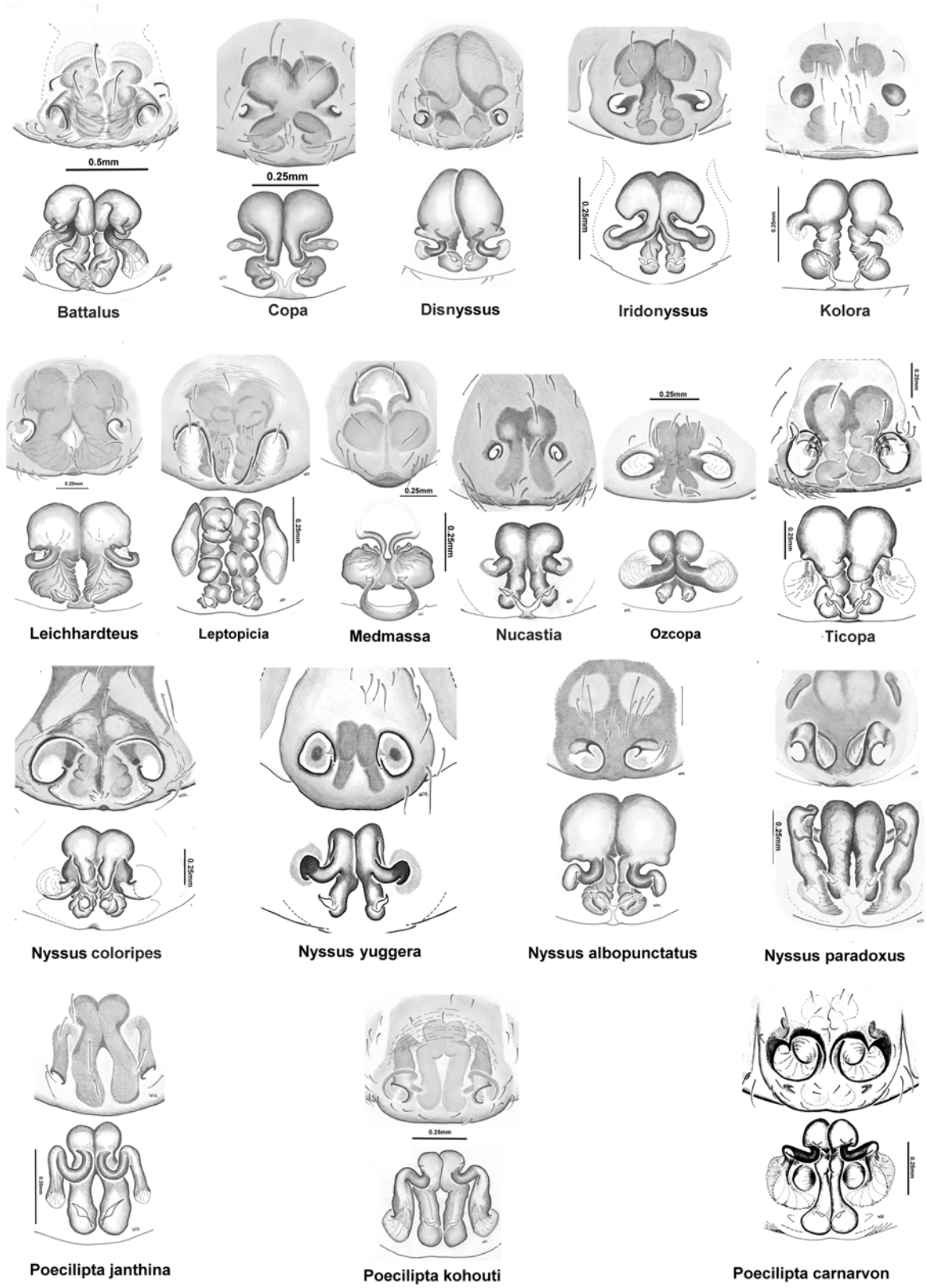


FIGURE 135. Comparative epigynes of genera, internal (upper), external (lower). *Battalus adamparsonsi* sp. nov.; *Copa kabana* sp. nov.; *Disnyssus judidenchae* sp. nov.; *Iridonyssus formicans* sp. nov.; *Kolora sauverubens* (Simon, 1896); *Leichhardteus yagan* sp. nov.; *Leptopicia bimaculata* (Simon, 1896); *Medmassa christae* sp. nov.; *Nucastia virewoods* sp. nov.; *Nyssus coloripes* Walckenaer, 1805, *Nyssus yuggera* sp. nov., *Nyssus albopunctatus* (Hogg, 1896); *Nyssus paradoxus* sp. nov.; *Ozcopa colloffi* sp. nov.; *Poecilipta janthina* Simon, 1896; *P. kohouti* sp. nov.; *P. carnarvon* sp. nov.; *Ticopa hudsoni* sp. nov.

***Ticopa longbottomi* sp. nov.**
(Figs 129 e–g, 132f, g, 134a–g. Map 89)

Material. **Western Australia**: holotype ♂, Grasspatch (Fitz. Loc. 41), 33°14'S, 121°43'E, 20 Mar 1986, A.F. Longbottom, WAM 98/1629. Paratypes: **Western Australia**: 1♀ (allotype), Laverton, [28°37'S, 122°24'E], Jul 1969, L.E. Koch, WAM 98/1633; 1♂, same data as HT but 6 Feb 1988, WAM 98/1630; ♂, same data but 15 Feb 1989, WAM 98/1631; 1♂, same data as HT but 33°10'S, 121°46'E, 27 Feb 1997, WAM 98/1632.

Diagnosis. Males differ from those of *T. carnarvon* sp. nov. in that the paracymbial spine is reniform in ventral view (Fig. 134c, d); also *T. longbottomi* sp. nov. has strong dark spotting on the ventral femora (Fig. 132f, g). Females differ from those of *T. carnarvon* sp. nov. in the absence of both strong fang setae and the smoothly rounded face above them (Fig. 134e).

Etymology. The species epithet is in honour of dedicated collector and photographer, Mr Alan Longbottom.

Description holotype male WAM 98/1629

Carapace 3.58 long, 2.50 wide. Abdomen 3.30 long, 1.97 wide. Total, 7.0.

Colour: carapace dark orange brown fading slightly posteriorly, with brown markings: broad irregular lobulate marks submarginally; two long sinuous bands on caput; lateral and posterior of fovea, large irregular patches; chelicerae dark brown with small orange brown ovoid area dorsally; eyes 'masked'; abdomen with dorsal tongue-like scute for half length, medially an irregular ostioform brown band centrally with narrow pallid line centrally, laterally a wide pallid band laterally with broken diagonal bands; ventral quadrangle pallid; legs yellow brown with 20–30 small brown areas ventrally on femora and dorsally around spine bases; diffuse band on distal femora; patellae and tibiae I and II yellowish with brown flecking; III and IV with diffuse basal and subdistal bands; maxillae and sternum orange brown, labium red brown, coxae all yellow brown. Carapace: with light cover of large black feathery hairs on brown thoracic region; shallow pre-fovea saddle; fovea short, deep, on ridge, not plateau; striae indistinct, masked by pattern. Maxillae: basal groove with short transverse distal ridge. Sternum widely cordate, no intercoxal extensions. Spines: I: fe pv1p2d3r1; ti p2v2.2.2.2; me v2.2. II: fe pv1p2d3r1; ti p2v2.2.2.2; me p2v2.2. III: fe p3d3r3; pa d1 distal; ti p2d1r2v2.2.2; me p3r3v2.2.3. IV: fe p2d3r1; ti p2d1r2v2.2.3; me p3r3v2.2.3. Palp: fe p1d2; pa d1 apical; ti p1d1. Abdomen: brown feathery hairs on brown areas; dorsal scute narrow with irregular, for anterior half; tracheal scute narrow, deep oval with narrow curved distal ridge. Palp: tibia with slight proventral depression for length; cymbium retrobasally with rounded marginal keel above which a truncate scooped paracymbial spine on raised mound in `well'; sparse scopula dorsally for distal fifth; bulb short, subtegulum just evident retrolaterally; embolic portion with basal narrow spiralled transverse collar becoming rugose long and lobular with small apex set above it.

Female allotype WAM 98/1633 (as ♂ except as follows)

Carapace 4.39 long, 3.21 wide. Abdomen 4.81 long, 3.56 wide. Totally, 9.3.

Colour: carapace submarginal marks almost absent, paramedial bands narrower; very few black spots ventrally on femur IV. Chelicerae: fang shield low, without enlarged setae, and face above it smoothly rounded. Sternum with intercoxal extension at I/II. Abdomen: small, keyhole-shaped dorsal scute; tracheal scute small, subquadrate with wide rounded ridge. Spines: also with long proventral spine on fe I. I: fe pv1p2 d3r1; ti p2v2.2.2.2; me p2v2.2. II: fe pv1p2d3r1; ti p2v2.2.2.2; me p2v2.2. III: fe p3d3r3; pa d1; ti p2d1r2v2.2.1 me p3r3v2.2.2. IV: fe p2d3r1; pa d1w; ti p2d1r2v2.2.2; me p3r3 v2.2.3. Palp: fe p1d2; pa p1d1.1; ti p2 basal, d1; ta p2 basal r1 basal. Epigyne: pair of long ovoid copulatory ridges; internally, large head of spermathecae narrows gradually to FD.

Distribution. Known only from Grasspatch and Laverton, south-west Western Australia.

Summary of Taxonomic Changes

Transfers

Corinnomma sauverubens Simon, 1896, see *Kolora* gen. nov. Corinnidae
Medmassa australiensis L. Koch, 1873, to *Miturga*, Miturgidae
Medmassa semiflava Simon, 1896, see *Battalus* Corinnidae

Methesis bimaculata Simon, 1896, see *Leptopicia* gen. nov. Corinnidae
Supunna insularis L. Koch, 1873, see *Nyssus* Corinnidae
Supunna smaragdinea Simon, 1909, see *Poecilipta* Corinnidae

In synonymy:
Medmassa bicolor Hogg, 1900 = *Nyssus coloripes* Walckenaer, 1805
Medmassa pallipes Hogg 1900 = *Creugas gulosus* Thorell, 1878
Medmassa pusilla Simon, 1896 = *Creugas gulosus* Thorell, 1878
Storena auripes Rainbow, 1916= *Nyssus coloripes* Walckenaer, 1805
Supunna albomaculata (Simon, 1896) = *Nyssus albopunctatus* (Hogg, 1896)
Supunna funerea (Simon, 1896) = *Nyssus albopunctatus* (Hogg, 1896)
Supunna michaelseni Simon, 1909 = *Nyssus coloripes* Walckenaer, 1805
Supunna picta (L. Koch, 1873) = *Nyssus coloripes* Walckenaer, 1805
Supunna versicolor Simon, 1896 = *Nyssus coloripes* Walckenaer, 1805

Nomen dubium
Medmassa fusca Hogg, 1900, see *Nucastia* gen. nov., Corinnidae.

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Appendix 1

Material Examined lists for *Nyssus coloripes* Walckenaer, 1805 and *Nyssus albopunctatus* (Hogg, 1896)in Queensland Museum.

Nyssus coloripes Walckenaer, 1805

Material Examined

Australian Capital Territory: ♂, Higgins, Canberra, 35°17'S 149°13'E, Feb 1977, T. Marples, QM S39342; ♂ ♀, Canberra, 35°17'S 149°13'E, Apr 1984, R. J. Raven, QM S39519. **Tasmania**: McPartlan Pass 42°50'S 146°14'E, pitfall, M. Driessen: ♀, Airstrip Rd, 15 Mar 2000, QM S70385; 2♂ 2♀, (site 5M), 12 Mar 2002, QM S70373, S70380; 2♂, 18 Feb 2004, M. Driessen, QM S80801, S75566; ♀, Maydena, Youth Hostel, 42°40'S 146°30'E, buildings, 13 Jan 1981, A. Rozefelds, QM S30212. **SOUTH AUSTRALIA**. ♂, Little Desert, 36°35'S 141°45'E,.VIC, pitfall, 5-10 Nov 1978, QM S39476; ♀, ♂ ♀, Renmark, 14k WNW, 34°07'S 140°37'E, mallee on dune, pitfall & intercept traps, 7 Nov-13 Dec 1995, K. R. Pullen, QM S46478, QM S32121; ♀, Renmark, 14k WNW, 34°07'S 140°37'E, mallee on dune, pitfall, 2 May-7 Jun 1995, K. R. Pullen, QM S32651; ♂, Renmark, 14k WNW of, 34°07'S 140°37'E,.SA, mallee on dune, pitfall & intercept traps, 10 Oct 1995-9 Nov 1995, K. R. Pullen, QM S32143; ♂, Renmark, 19k N, 34°00'S 140°47'E, chenopod scrubland, pitfall & intercept traps, 10 Aug-7 Sep 1995, K. R. Pullen, QM S80902; ♀, Renmark, 19k N, 34°00'S 140°47'E, chenopod scrubland, 8 Nov 1995-22 Nov 1995, A. Lambie, K. R. Pullen, QM S32148; ♂, Renmark, 19k N, 34°00'S 140°47'E, chenopod scrubland, pitfall & intercept traps, 14 Dec 1995-25 Jan 1996, K. R. Pullen, QM S32156; ♂, Renmark, 19k N, 34°00'S 140°47'E, chenopod scrubland, pitfall & intercept traps, 8 Nov-14 Dec 1995, K. R. Pullen, QM S32128; ♀, Renmark, 19k N, 34°00'S 140°47'E, chenopod scrubland, malaise trap, 10 Oct-9 Nov 1995, K. R. Pullen, QM S36025; ♂, Renmark, 31k NW, 33°59'S 140°30'E, chenopod scrubland, pitfall, 1-7 Mar 1995, A. Lambie, QM S32142; ♂, Renmark, 31k NW, 33°59'S 140°30'E, mallee, pitfall, 7-23 Nov 1995, A. Lambie, K. R. Pullen, QM S32179; ♂, Renmark, 32k N, 33°53'S 140°44'E, mallee, pitfall, 9-22 Nov 1995, A. Lambie, K. R. Pullen, QM S43692; ♂, Renmark, 32k N, 33°53'S 140°44'E, mallee, pitfall & intercept traps, 9 Nov-12 Dec 1995, K. R. Pullen, QM S32154; ♀, Renmark, 79k NNW, 33°31'S 140°24'E, casuarina woodland, pitfall, 8-22 Nov 1995, A. Lambie, K. R. Pullen, QM S32125; ♂, Renmark, 79k NNW, 33°31'S 140°24'E, casuarina woodland, pitfall, 3 May-6 Jun 1995, A. Lambie, QM S32137; ♂, Lake Torrens nr Andamooka, 31°32'S 137°40'E,.SA, lake edge, 19 Jan 1993, R. McKay, QM S25536; ♂ ♀, Calperum HS, 12km SW, 34°07'S 140°38'E, chenopod scrubland, pitfall & intercept traps, 28 Feb-28 Mar 1995, K. R. Pullen, QM S32134; ♂, Calperum HS, 21k W by N, 33°59'S 140°30'E, mallee, pitfall & intercept traps, 1-30 Mar 1995, K. R. Pullen, QM S32631. **Northern Territory**: ♂, Finke Gorge NP, Little Palm Ck, 24°06'S 132°46'E, rocky waterholes, 13 Mar 1995, T. Weir, QM S32626; ♂, Groote Eylandt, 13°58'S 136°25'S, pitfall, Jun 1982, J. D. Majer, QM S39517; ♂ ♀, Gove, 12°10's 136°46'E, pitfall, Jul 1982, J. D. Majer, QM S39518; ♂, Kemp Airstrip, 12°35'S 131°20'E, rainforest, litter, 15 Sep 1979, R. J. Raven, QM S18600. **Victoria**: ♂ ♀, Barmah Forest, 35°56'S 145°03'E, forest, pitfall, May 2000, A. Ballinger, QM S60231; ♀, Upper Packenham, 29 Dec 2001, QM S55346; ♀, Wangaratta, Nov 2001, P. Maiden, QM S55345; ♀, Heathcote, 11 Jun 1973, QM S51324; ♂, Valencia Ck, gravel bank in stream bed, pitfall, 1-18 Dec 1996, V. Framenau, QM S44087; ♀, Bemm R, 37°46'S 148°58'E, 16-28 Nov 1973, V. Salanitri, QM S51320; ♂, Bemm R, 37°46'S 148°58'E, 16-28 Nov 1973, V. Salanitri, QM S51319; , Lindum, 37°35'S 148°58'E, QM W783; ♂, Little Desert, 36°35'S 141°45'E, pitfall, 5-10 Nov 1978, QM S39476. **New South Wales:** ♀, Turners Dip, 31°01'S 152°42'E, 22-23 Nov 1978, R. J. Raven *et al.*, QM S39341; ♀, Tenterfield, Molesworth St, 28°53'S 151°57'E, spider bite, 22 Apr 1991, B Hinitt, QM S39374; ♀, Stotts I, Tweed R, 28°14'S 153°31'E, rainforest, 17-19 Nov 1978, R. J. Raven, QM S31624; ♀, Clouds Ck SF, 30°05'S 152°38'E, 30 Aug 1975, Bill Humphries, QM S39366; 4131N 100♂ ♀, Tabulam, 8km upstream on Clarence R, 28°53'S 152°34'E, on tree trunks, 20 May 1973, D. Gleeson, QM S39368; ♂, Taleeban (site 1T), 33°55'S 146°28'E, pitfall, 12-18 Oct 1999, D. Driscoll, QM S53260; ♂, Taleeban (site 4T), 33°57'S 146°27'E, spinifex, pitfall, 12-18 Oct 1999, D. Driscoll, QM S53040; ♂, Round Hill Nature Reserve (site 4R), 32°59'S 146°05'E, mallee, pitfall, 19-23 Dec 1999, D. Driscoll, QM S53123; ♂, Round Hill Nature Reserve (site 5R), 32°59'S 146°04'E, mallee, pitfall, 19-23 Dec 1999, D. Driscoll, QM S52505; ♂ 1, Round Hill Nature Reserve (site 5R), 32°59'S 146°04'E, mallee, pitfall, 19-23 Dec 1999, D. Driscoll, QM S52575; ♂, Round Hill Nature Reserve (site 6R), 32°59'S 146°03'E, mallee, pitfall, 19-23 Dec 1999, D. Driscoll, QM S52608; ♂, Round Hill Nature Reserve (site 6R), 32°59'S 146°03'E, mallee, pitfall, 19-23 Dec 1999, D. Driscoll, QM S53078; ♂, Pulletop (site 10P), 33°56'S 146°06'E, woodland, pitfall, 3-8 Nov 1999, D. Driscoll, QM S53810; ♂, Pulletop (site 2P), 33°58'S 146°04'E, spinifex,

pitfall, 3-8 Nov 1999, D. Driscoll, QM S52475; ♂, Pulletop (site 3P), 34°01'S 146°04'E, pitfall, 3-8 Nov 1999, D. Driscoll, QM S53741; ♀, Pulletop (site 4P), 33°59'S 146°04'E, spinifex, pitfall, 3-8 Nov 1999, D. Driscoll, QM S53970; ♀, Pulletop (site 5P), 34°00'S 146°05'E, pitfall, 3-8 Nov 1999, D. Driscoll, QM S53916; ♂, Billabong Ck, 12km S Parkes, 33°14'S 147°07'E, woodland, pitfall, 18 Dec 1997-10 Jan 1998, K. & D. Krebs, QM S50577; ♂, Gubatta (site 8G), 33°35'S 146°36'E, road verge, pitfall, 6-14 Dec 1999, D. Driscoll, QM S53876. **Queensland**: ♀, Bald Hills, Brisbane, 27°19'S 153°01'E, 18-20 Dec 1979, D. Seeton, QM S39477; ♀, Daunton, via Ilfracombe, 23°30'S 144°30'E, 11 Sep 1996, E. D. McKenzie, QM S30861; ♀, Daunton, via Ilfracombe, 23°16'S 144°49'E, house, 20 Feb 1999, E. D. McKenzie, QM S49148; ♀, Daunton, via Ilfracombe, 23°16'S 144°49'E, 7 Nov 1996, E. D. McKenzie, QM S35026; ♀ 1, Daunton, via Ilfracombe, 23°16'S 144°49'E, on grass, 4 Feb 1997, E. D. McKenzie, QM S35035; ♂, Daunton, via Ilfracombe, 23°16'S 144°49'E, house, 23 Oct 1996, E. D. McKenzie, QM S29820; ♀, Daunton, via Ilfracombe, 23°16'S 144°49'E, 21 Nov 1999, E. D. McKenzie, QM S51969; ♀, Daunton, via Ilfracombe, 23°16'S 144°49'E, 7 Jan 1997, E. D. McKenzie, QM S35025; ♂, Daunton, via Ilfracombe, 23°16'S 144°49'E, 17 Apr 1999, E. D. McKenzie, QM S39606; ♂, Merigol, site 4, trap 8, 26°47'S 145°49'E, mulga, pitfall, Apr2001, T. Beutel, QM S77587; ♂, Merigol, site 9, trap 11, 26°49'S 145°49'E, mulga, pitfall, Apr2001, T. Beutel, QM S63435; ♂, Oak Wells, site 2, 25°48'S 148°16'E, semi-evergreen vine thicket, flight intercept trap, 15 Dec 2001-7 Mar 2002, G. Monteith, D. Cook, QM S69852; ♀, Wallaroo, HWy 5km W, 25°18'S 148°39'E, acacia regrowth, mushroom baited pitfall, 3-10 Mar 2006, C. Burwell, G. Monteith, QM S80121; ♂, Wonga Hills, 10km ENE, 26°03'S 150°55'E, brigalow, flight intercept trap, 10 Oct-11 Dec 2001, G. Monteith, D. Cook, QM S60635; ♂, Wonga Hills, site 2, 26°04'S 150°49'E, softwood scrub, flight intercept trap, 10 Oct-11 Dec 2001, G. Monteith, D. Cook, QM S58616; ♂ 1j, Beerburrum, 26°58'S 152°58'E, house, Dec 95-Jan 96, L Evans, QM S32208; ♂, Beerwah, 26°51'S 152°57'E, 04 Jan 1998, V. E. Davies, QM S50586; ♀, Beerwah Forestry Reserve, 26°51'S 152°57'E, rainforest, pitfall, 16 May 1990, M. Glover, QM S18934; ♂, Belmont Hill, gully, 27°30'S 153°07'E, rainforest, flight intercept trap, 12 Dec 1997-7 May 1998, G. Monteith, QM S34966; ♂, Belmont Hills Bushlands (BCC1), 27°30'S 153°07'E, dry euc woodland, pitfall, 1 Sep-1 Oct 2003, QM party, QM S62371; ♂ ♀, Binjour Plateau, Redvale Rd, 25°33'S 151°28'E, open forest, flight intercept trap, 20 Dec 1997-26 Apr 1998, G. Monteith, QM S46391; ♂, Blackbutt Ra summit, 5km E Benarkin, 26°52'S 152°11'E, rainforest, pitfall, 24 Oct-24 Nov 1995, G. Monteith, QM S43823; ♂ ♀, Blackbutt Ra summit, 5km E Benarkin, 26°52'S 152°11'E, rainforest, pitfall & intercept traps, 29 Jul-23 Oct 1995, G. Monteith, QM S40770; ♂, Bladenberg NP, Bough Shed campsite, 22°33'S 142°57'E, open forest, pitfall, 28 Jun-7 Sep 2006, R. Raven, B. Baehr, A. Amey, QM S77096; ♀, Boat Mt EP, summit, 26°10'S 151°58'E, open forest, pitfall, 14 Dec 1994-26 Jan 1995, G. Monteith, QM S51782; ♂ ♀, Bogantungan, 13.5km N, 23°31'S 147°17'E, open forest, flight intercept trap, 18 Dec 2000-27 Mar 2001, D. Cook, G. Monteith, QM S56912; ♂, Boggomoss No 4 (near), Taroom, 25°26'S 150°01'E, pitfall, 11 Nov 1996-12 Jan 1997, P. Lawless, H. Janetzki, D. Cook, QM S37256; ♀, Boonah, 28°00'S 152°41'E, 21 Apr 1973, G. May, QM S39371; ♂, Boondall Wetlands (BCC1), 27°20'S 153°04'E, melaleuca wetland, pitfall, 29 Jul-2 Sep 2003, QM party, QM S62275; ♀, Bottle Tree Bluff, Bunya Mts, 26°52'S 151°39'E, 1 Mar 1976, V. E. Davies, QM S39448; , Bouldercombe (DW14), 23°32'S 150°26'E, open forest, pitfall, 21 Mar 1991, D. Wallace, R. Raven, K. Williams, QM S25313; ♂ ♀, Braemar SF, 27°13'S 150°50'E, pitfall, 4-8 Feb 1980, G.&S. Monteith&QueenslandMuseum, QM S39474; ♂, Brigalow Res Stn (site 2), 24°49'S 149°45'E, softwood scrub, flight intercept trap, 28 Oct-16 Dec 2000, D. Cook, G. Monteith, QM S55838; ♂, Brigalow Res Stn (site 5), 24°48'S 149°45'E, softwood scrub, flight intercept trap, 16 Dec 2000-28 Mar 2001, D. Cook, G. Monteith, QM S56138; ♀, Brookfield, Gold Ck Reservoir, 27°30'S 152°55'E, closed forest, pitfall, 23 Apr 1981, R. Raven, V. Davies, QM S39358; ♂, Bundaberg (Brewed Drinks), 24°52'S 152°21'E, Jan 2002, QM S55458; ♂ ♀, Bundaberg, Baldwins Swamp, 24°52'S 152°21'E, 1 Feb 1993, E. Eric Zillmann, QM S20978; ♂, Cabarlah, Toowoomba, 27°16'S 152°03'E, 17 Jun-18 Oct 2004, Jarred Warden, QM S75631; ♀, Camerons Scrub, snig track, 27°31'S 152°44'E, vine scrub, flight intercept trap, 13 Jan-16 May 1999, G. Monteith, QM S50398; ♀, Camira, Ipwsich, 27°38'S 152°55'E, Apr-Sep 1985, J&D Raven, QM S39370; ♂, Chelsea Rd Bushlands Reserve (BCC), 27°29'S 153°11'E, open forest, pitfall, 30 Oct-1 Dec 2003, QMP, QM S63583; ♀, Chinchilla, 6km W, 26°44'S 150°38'E, malaise trap, 12 Mar 1987-25 Mar 1987, G Lithgow, QM S39336; ♂, Coominglah SF, Hurdle Gully, 13km WSW Monto, 24°51'S 151°00'E, vine scrub, in bank, 20 Dec 1997, P. Lawless, QM S60154; ♀, Cooran Plateau, Barracks site, 26°17'S 152°49'E, open forest, 12 Apr 1995, P. Lawless, QM S26198; ♂, Crediton, 21°13'S 148°34'E, camp site, 14 Apr-21 Apr 1975, R. Raven, V. Davies, QM S39344; ♀, CSIRO Research Stn, via Mundubbera, 25°35'S 151°18'E, 01 Dec 1982, P. Brooks, QM S39365; ♂, Dickey Beach, Caloundra, 26°48'S 153°08'E, 30 Aug 1979, V. E. Davies, QM S39367; ♂, Doomadgee, W near

Gilbert R, 17°46'S 138°30'E, open forest, pitfall, 5 Jul-13 Sep 2006, R. Raven, B. Baehr, A. Amey, QM S77179; ♂, Drummond Range summit, 23°32'S 147°17'E, open forest, flight intercept trap, 25 Oct-17 Dec 2000, D. Cook, G. Monteith, QM S57334; ♀, Endfield stn, 40 m W Westmar (100 sq m reptile site), 27°55'S 149°43'E, 10 Jan 1979, R. Raven, V. Davies, QM S39337; ♂, Enoggera Reservoir, site 9, 27°26'S 152°54'E, open forest, flight intercept trap, 15 Mar-18 May 2000, G. Monteith, QM S56377; ♀, Enterprise Mine, Scribbly Gum #3, 27°36'S 153°26'E, scrubby gully, pitfall, 8-22 Jan 2002, QMP, QM S55985; 3j, Ewan Mattock Dam (B4), 26°48'S 152°59'E, open forest, pitfall, 30 Jan 1993-3 May 1993, M. Glover, QM S32236; ♂, Expedition N. P., Amphitheatrecamp, 25°12'S 148°59'E, ironbark woodland, flight intercept trap, 18 Dec 1997-5 Mar 1998, D. Cook, G. Monteith, QM S60097; ♂, Expedition Ra NP, Amphitheatre camp, 25°12'S 148°59'E, open forest, intercept flight trap, 25 Sep 1997-18 Dec 1997, G. Monteith, D. Cook, QM S44447; ♂ ♀, Expedition Ra NP, Amphitheatre camp, 25°12'S 148°59'E, open forest, flight intercept trap, 18 Dec 1997-5 Mar 1998, G. Monteith, D. Cook, QM S32441; ♂ 1j, Expedition Ra NP, Amphitheatre camp, 25°12'S 148°59'E, open forest, intercept flight trap, 25 Sep 1997-18 Dec 1997, G. Monteith, D. Cook, QM S44342; ♀, Expedition Ra NP, Amphitheatre scrub, 25°13'S 148°59'E, vine scrub, flight intercept trap, 25 Sep-17 Dec 1997, G. Monteith, D. Cook, QM S44790; ♂ ♀, Expedition Ra NP, Amphitheatre yards, 25°13'S 149°01'E, open forest, flight intercept trap, 19 Dec 1997-4 Mar 1998, G. Monteith, D. Cook, QM S49942; ♂, Expedition Ra NP, Amphitheatreyards, 25°13'S 149°01'E, open forest, flight intercept trap, 27 Sep-19 Dec 1997, G. Monteith, D. Cook, QM S44497; ♂ ♀, Expedition Ra NP, Amphitheatreyards, 25°13'S 149°01'E, open forest, flight intercept trap, 27 Sep-19 Dec 1997, G. Monteith, D. Cook, QM S44779; ♀, Fairlie's Knob, 3.5km SE, 25°32'S 152°19'E, hoop pine scrub, flight intercept trap, 20 Oct-20 Dec 2000, G. Monteith, D. Cook, QM S39812; ♀, Fortitude Valley, QM, possibly from Mt Glorious, 27°28'S 153°02'E, on buildings, 11 Sep 1972, P. Rainbird, QM S25547; ♂ ♀ 1j, Forty Mile Scrub NP (NQ 29), 18°53'S 144°51'E, vine thicket, pitfall, 6 Nov 1991-25 Jul 1992, P. Lawless, R. Raven, M. Shaw, QM S32183; ♂ 1j, Fraser I:Orchid Beach, Stirling Castle Dr, 25°29'S 153°03'E, pitfall, Feb 2000, R. Raven, P. Lawless, QM S55954; ♀, Frenchville (DW10), 23°20'S 150°34'E, open forest, pitfall, 21 Mar 1991, D. Wallace, R. Raven, K. Williams, QM S46479; ♂, Gregory & Herveys Range Dev. Road crossing, 19°31'S 145°44'E, open forest, flight intercept trap, 17 Dec 2006-15 Feb 2007, G. Monteith, D. Cook, QM S76967; ♀, Gregory & Herveys Range Dev. Road crossing, 19°31'S 145°44'E, open forest, pitfall, 17 Dec 2006-15 Feb 2007, G. Monteith, D. Cook, QM S76600; ♂ ♀, Gregory Dev. Road, S of Gray Creek, 19°01'S 145°02'E, open forest, pitfall, 27 Sep-17 Dec 2006, QMP, QM S79007; ♂, Gregory Tce Museum, 27°28'S 153°01'E, 04 Mar 1985, V. M Coops, QM S39360; ♂ ♀, Gubberamunda SF, site 2, 26°16'S 148°42'E, cypress pine, flight intercept trap, 14 Dec 2001-6 Mar 2002, G. Monteith, D. Cook, QM S69818; ♂ 1j, Gurgeena Plateau, 25°27'S 151°22'E, open forest, flight intercept trap, 10 Oct-19 Dec 1998, G. Monteith, C. Gough, QM S50064; ♂, Gurgeena Plateau, 25°27'S 151°22'E, open forest, pitfall, 10 Oct-19 Dec 1998, G. Monteith, C. Gough, QM S50076; ♂, Gurgeena Plateau, 25°27'S 151°23'E, open forest, flight intercept trap, 18 Dec 1998-27 Jan 1999, G. Monteith, C. Gough, QM S50395; ♀, Hann Tblnd, Radar Stn, 16°55'S 145°15'E, 8 Feb 1996, G. Monteith, QM S41620; ♂, Humphery Racetrack, 25°38'S 151°30'E, open forest, pitfall, 18 Dec 1998-27 Jan 1999, G. Monteith, C. Gough, QM S51305; ♂ ♀, Hurdle Gully, 10.8km WSW Monto, 24°54'S 151°01'E, vine scrub, flight intercept trap, 20 Dec 1997-26 Apr 1998, G. Monteith, QM S31702; ♂, Indooroopilly, 27°30'S 152°59'E, 08 May 1985, J. Gallon, QM S39348; ♂, Isla Gorge N. P., NE corner, 25°10'S 150°00'E, semi-evergreen vine thicket, pitfall, 15 Dec 1997-4 Mar 1998, D. Cook, G. Monteith, QM S60147; ♂, Isla Gorge, 8.4km SSW Lookout, 25°16'S 149°56'E, vine scrub, pitfall, 19 Dec 1997-3 Mar 1998, G. Monteith, D. Cook, QM S44344; ♀, Isla Gorge, Lookout turnoff, 25°12'S 149°48'E, open forest, intercept flight trap, 15 Dec 1997-4 Mar 1998, D. J. Cook, QM S44302; ♂, Jack Smith EP on Boat Mtn, 26°09'S 151°54'E, semi-evergreen vine thicket, flight intercept trap, 15 Dec 1994-26 Jan 1995, G. Monteith, QM S59277; ♂, Jondaryan, 27°22'S 151°36'E, J. White jnr, QM S29388; ♀, Jundah, Noonbah, 24°04'S 143°11'E, cowpat, 24 Sep 1993, A. Emmott, QM S29554; ♀, just W of Toomba eastern boundary, 19°57'S 145°43'E, open forest, pitfall, 13 Feb-8 May 2007, R. J. Raven, QM S79188; ♀, Kalbar, 3 km SE, 27°57'S 152°38'E, flight intercept trap, 2 Dec 2000-7 May 2001, C. J. Burwell, QM S56130; ♂, Kalbar, 3 km SE, 27°57'S 152°38'E, flight intercept trap, 2 Dec 2000-7 May 2001, C. J. Burwell, QM S56393; ♂, Karawatha Forest (BCC6), 27°37'S 153°05'E, dry euc woodland, pyrethrum knockdown, 17 Apr 2003, C. J. Burwell, QM S62227; ♂, Karawatha Forest (BCC6), 27°37'S 153°05'E, eucalypt woodland, pitfall, 29 Jul-2 Sep 2003, QM party, QM S67531; ♂, Karawatha Forest (BCC6), 27°37'S 153°05'E, dry euc woodland, pitfall, 2-30 Jan 2004, QM party, QM S54975; ♀, Keysland, 26°12'S 151°44'E, open forest, pitfall, 5 Dec 1994-26 Jan 1995, G. Monteith, QM S51787; ♂ 1j, Keysland, 26°12'S 151°44'E, open forest, flight intercept trap, 29 Sep-5 Dec 1994, G. Monteith, QM S34870; ♀,

Kroombit Tops, Lower Dry Ck, 24°24'S 151°01'E, open forest, 9-19 Dec 1983, V. Davies J. Gallon, QM S39362; ♀, Lake Broadwater, 27°21'S 151°06'E, 12 Aug 1984, M. Bennie, QM S39350; ♀, Lake Broadwater via Dalby, 27°21'S 151°06'E, 26 Jan 1985, V. E. Davies, QM S39470; 4j, Lake Broadwater (Site 1), 27°21'S 151°06'E, pitfall, 22 Apr-12 Jun 1986 Museum & M. Bennie, QM S50452; ♀, Lake Broadwater (Site 1), 27°21'S 151°06'E, pitfall, 3 Jan-25 Feb 1986, QM S50465; ♂ 2j, Lake Broadwater (Site 1), 27°21'S 151°06'E, pitfall, 25 Mar-16 May 1985, QM S50463; ♂, Lake Broadwater (Site 1), 27°21'S 151°06'E, pitfall, 25 Feb-22 Apr 1986 Museum & M. Bennie, QM S50445; ♂ ♀, Lake Broadwater (Site 1), 27°21'S 151°06'E, pitfall, 26 Jan-18 Feb 1985, QM S50455; ♀ 1j, Lake Broadwater (Site 1), 27°21'S 151°06'E, pitfall, 18 Feb-25 Mar 1985, QM S50475; ♀ 2j, Lake Broadwater (Site 1), 27°21'S 151°06'E, pitfall, 16 May-23 Nov 1985, QM S50464; ♂ ♀ 2j, Lake Broadwater (Site 1), 27°21'S 151°06'E, pitfall, 24 Nov 1985-3 Jan 1986 Museum & M. Bennie, QM S50451; ♂, Lake Broadwater (Site 2), 27°21'S 151°06'E, pitfall, 3 Jan-25 Feb 1986 Museum & M. Bennie, QM S50435; ♀, Lake Broadwater (Site 2), 27°21'S 151°06'E, pitfall, 26 Jan-19 Feb 1985 Museum & M. Bennie, QM S50429; ♂, Lake Broadwater (Site 2), 27°21'S 151°06'E, pitfall, 22 Apr-12 Jun 1986 Museum & M. Bennie, QM S50426; ♀, Lake Broadwater (Site 2), 27°21'S 151°06'E, pitfall, 25 Feb-22 Apr 1986 Museum & M. Bennie, QM S50443; ♂ ♀ 1j, Lake Broadwater (site 7), 27°21'S 151°06'E, river gums, pitfall, 16 May-23 Nov 1985, G. Thompson, QM S43704; ♂ ♀, Lake Broadwater, buildings southside, 27°21'S 151°06'E, 23 Nov 1985, G. Thompson, QM S39347; ♂, Lake Broadwater, buildings southside, 27°21'S 151°06'E, 1-15 Nov 1984, V. Wood, QM S39346; ♂, Lake Broadwater, Lakeview, 27°21'S 151°06'E, Nov 1984, M. Bennie, QM S39338; ♂, Lake Broadwater, Site 2, 27°21'S 151°06'E, pitfall, 17 May-24 Nov 1985 Museum & M. Bennie, QM S50431; ♀, Lake Broadwater, Surveyors Gully, 27°21'S 151°06'E, Jan 1985, M. Bennie, V. Davies, QM S46481; ♂, Lake Moondarra, Mt Isa, 20°40'S 139°30'E, open forest, pitfall, 17 Apr-25 Jul 1996, R. Raven, R. McKay, QM S43699; ♀, Lake Nuga Nuga, 24°59'S 148°40'E, 14 May 1978, K. McDonald, QM S39339; ♂, Landsborough, 26°48'S 152°58'E, house, 21 Sep 1991, M. Glover, QM S32122; ♀, Lindum, Brisbane, 18 Jan 1938, K. Watson, QM S39356; ♀, Lords Table plateau, site 2, 22°39'S 148°01'E, eucalypt woodland, malaise trap, 10 Jan-7 Mar 2006, C. J. Burwell, QM S80054; ♂, Maleny, 26°46'S 152°51'E, house, 30 Dec 1973, R. Monroe, QM S39473; ♂, Mapleton Falls NP, 26°38'S 152°51'E, rainforest, intercept flight trap, 8 Jan-3 Mar 1992, D. J. Cook, QM S25189; ♀ 1j, Marlaybrook, Bunya Mts, 26°54'S 151°35'E, litter, 2 Mar 1976, R. Raven, V. Davies, QM S39478; ♀, Mazeppa NP, S end, 22°16'S 147°16'E, brigalow, flight intercept trap, 18 Dec 2000-26 Mar 2001, G. Monteith, D. Cook, QM S56890; ♂, Mazeppa NP, S end, 22°16'S 147°16'E, brigalow, flight intercept trap, 18 Dec 2000-26 Mar 2001, D. Cook, G. Monteith, QM S59785; ♂, Miles, 11km E, 26°40'S 150°18'E, open forest, dung, pitfalls, & intercepts, 03-6 Mar 1998, D. Cook L. Hugo, QM S44371; ♂, Miles, 11km E of, 26°40'S 150°18'E, pitfall, 27 Sep-3 Oct 1998, D. J. Cook, QM S49948; ♂, Moranbah, 5km S, 22°20'S 148°03'E, pitfall, 25 Jun-20 Dec 1997, G. Monteith, E. Kruck, QM S44456; ♂, Moranbah, 5km S of, 22°02'S 148°03'E, open forest, pitfall, 20 Dec 1997-26 Apr 1998, G. Monteith, QM S31712; ♂, Moranbah, 5km South, 22°02'S 148°02'E, gravel ridge, flight intercept trap, 20 Dec 1997-26 Apr 1998, G. Monteith, QM S57011; ♀, Moranbah, 5km South, 22°03'S 148°03'E, box flat, flight intercept trap, 20 Dec 1997-26 Apr 1998, G. Monteith, QM S56948; ♀, Moranbah, 6km S, 22°02'S 148°03'E, pitfall, 25 Jun 1997-20 Dec 1997, G. Monteith, E. Kruck, QM S44438; ♂, Morayfield, 27°07'S 152°57'E, 24 Jan 1982, A. Macadam, QM S39334; ♂, Mount Tregaskis, 3 km NNE, 19°15'S 145°29'E, open forest, pitfall, 17 Dec 2006-15 Feb 2007, G. Monteith, D. Cook, QM S76633; ♂ ♀, Mount Tregaskis, 3 km NNE, 19°15'S 145°29'E, open forest, flight intercept trap, 17 Dec 2006-15 Feb 2007, G. Monteith, D. Cook, QM S76593; ♀, Mt Edwards, 28°01'S 152°33'E, 28 Apr 1992, N. Cotsell, QM S51187; ♂, Mt French NP, 28°00'S 152°37'E, rainforest, flight intercept trap, 29 Feb 1992-11 Apr 1992, D. J. Cook, QM S25033; ♂, Mt Gavial, 3km SSE, 23°37'S 150°29'E, open forest, flight intercept trap, 18 Dec 1998-14 Mar 1999, D. J. Cook, QM S50035; ♀, Mt Glorious, 27°20'S 152°46'E, rainforest, 29 Jul 1973, R. J. Raven, QM S39355; ♀, Mt Glorious, 27°20'S 152°46'E, Apr 1996, K. Hiller, QM S30704; ♀, Mt Glorious, 27°20'S 152°46'E, 29 Sep 1973, R. J. Raven, QM S31644; ♂ ♀, Mt Kandanga, 26°27'S 152°34'E, wet sclerophyll, flight intercept trap, 15 Jan-27 May 2002, G. Monteith, QM S69817; ♂, Mt Moffatt NP, Dargonelly Rock Holes, 25°01'S 147°57'E, open forest, 20-27 Sep 1986, M. Bennie, QM S15949; ♂, Mt Moffatt NP, Mahoganany Forest, 24°56'S 148°04'E, open forest, intercept flight trap, 26 Nov 1995-25 Feb 1996, G. Monteith, QM S37640; ♀, Mt Nebo, 27°23'S 152°47'E, rainforest, 01 Jan 1979, A. Rozefelds, QM S39373; ♂, Mt Nebo, 27°23'S 152°47'E, house, 2 Dec 1972, D. M. Dale, QM S46480; ♀, Mt Pleasant, Dalby, 27°10'S 151°23'E, No date, M. Geary, QM S39464; ♂, Mt Pollux, SW base, site 1, 22°28'S 147°52'E, brigalow, intercept flight trap, 12 Jan-5 Mar 2006, C. J. Burwell, QM S80001; ♀, Mt Robert, 2 km NNW, 21°21'S 148°29'E, semi-evergreen vine thicket, flight intercept trap, 19

Dec 2000-25 Mar 2001, D. Cook, G. Monteith, QM S56897; ♀, Mt Tamborine, 27°56'S 153°12'E, rainforest, 1984, B. Westerman, QM S39354; ♀, Mt Windsor Tbld, Whypalla SF, 16°12'S 144°58'E, open forest, pitfall, Summer 92/93, S. Burnett, QM S24402; ♂, Mulgowie, 27°44'S 152°22'E, 23 Sep 1981, M. Grant, QM S39345; ♂ ♀, Mulgowie, 27°44'S 152°22'E, 21 Apr-5 May 1981, M. D. Grant, QM S39340; ♂, Mulgowie, Laidley Valley, 27°44'S 152°22'E, eucalypt woodland, 21 Jan 1981, M. Grant, QM S39363; ♀, Museum, 27°28'S 153°01'E, No date, M P Beirne, QM S39447; ♀, Nanango, 26°40'S 152°00'E, 10 Jan 1999, E. Dow, QM S42834; ♂, Nangur SF (1st site), 26°08'S 151°58'E, rainforest, flight intercept trap, 24 Oct-24 Nov 1995, G. Monteith, QM S32100; ♀, Nangur SF (1st site), 26°08'S 151°58'E, rainforest, pitfall, 24 Nov 1995-3 Feb 1996, G. Monteith, QM S37656; ♂, Nipping Gully (Site 4), 25°40'S 151°26'E, open forest, flight intercept trap, 21 Aug-9 Oct1998, G. Monteith, QM S49947; ♂ ♀, Nipping Gully (site 6), 25°42'S 151°26'E, open forest, flight intercept trap, 18 Dec 1998-26 Jan 1999, G. Monteith, C. Gough, QM S49981; ♂, Nob Ck, 22°52'S 150°37'E, pitfall, Jan 1994, D. Wallace, Healy, QM S43691; ♂, Nogoa R, Salvator Rosa NP, camp site, 17 Sep 1984, M. Bennie, QM S39364; ♂, North Stradbroke I, 27°35'S 153°27'E, Oct 1982, J. D. Majer, QM S43693; ♂, North Stradbroke I, 27°35'S 153°27'E, bush, Oct 1982, J. D. Majer, QM S43697; ♂ ♀, Oak Forest, 16°49'S 145°34'E, 7 Oct 1971, N. Clyde Coleman, QM S18623; ♂ 2j, Osbourne Mine site, SSE Mt Isa (site 2a), 22°07'S 140°34'E, open forest, pitfall, 19 Apr-2 Jul 1996, R. Raven, A. Nicholson, QM S31251; ♂ ♀ 1, Osbourne Mine site, SSE Mt Isa (site 2a), 22°07'S 140°34'E, open forest, pitfall, 19 Apr-2 Jul 1996, R. Raven, A. Nicholson, QM S31236; ♂, Peak Downs, 22°15'S 148°11'E, 30 Nov 1973, V. Davies R. McKay, QM S31643; ♂ ♀, Petrie, 27°16'S 152°59'E, 07 Mar 1984, Mrs Saunders, QM S39349; ♂, Pheasant Ck, 23°45'S 150°09'E, ironbark woodland, pitfall, Mar 1993, D. Wallace, F. Armstrong, QM S32621; ♂, Pheasant Ck (Block no2), 23°45'S 150°09'E, pitfall, 9 Jun 1994, D. Wallace, F. Armstrong, QM S32628; ♀, Pheasant Ck, between Grantleigh & Wowan, 23°45'S 150°09'E, pitfall, Jul 1993, D. Wallace, QM S22162; ♀, Pine R Dam, Petrie, 27°16'S 152°59'E, 13 Mar 1974, V. E. Davies, QM S39343; ♂, Proserpine, 20°24'S 148°35'E, 17 Aug 1971, N. Clyde Coleman, QM S39353; ♂, Proserpine, Airport Drive, site XY12, 20°29'S 148°34'E, closed woodland, pitfall, 5 Nov 2007-13 Feb 2008, R. J. Raven, QM S85624; ♂, Proserpine, Airport Drive, site XY12, 20°29'S 148°34'E, closed woodland, pitfall, 16 Feb-10 May 2007, R. J. Raven, QM S85132; ♂, Proserpine, Airport Drive, site XY12, 20°29'S 148°34'E, closed woodland, pitfall, 15 Aug-5 Nov 2007, R. Raven, C. Burwell, QM S85855; ♀, Proserpine, Deadman Creek, site XY17, 20°30'S 148°33'E, open forest, malaise trap, 6-14 Nov 2007, N. Power, J. Stanisic, C. Burwell, R. Raven, QM S85917; ♂, Proserpine, Lilypool Site, site XY18, 20°30'S 148°33'E, closed forest, pitfall, 15 Aug-6 Nov 2007, R. Raven, C. Burwell, QM S85874; ♂, Proserpine, nr Kelsey Substation, site XY19, 20°23'S 148°32'E, closed forest, pitfall, 17 Feb-10 May 2007, R. J. Raven, QM S85051; ♀, Proserpine, nr Kelsey Substation, site XY19, 20°23'S 148°32'E, closed forest, in and under bark, 6 Nov 2007, R. J. Raven, QM S86791; ♀, Proserpine, Thompson Creek, site XY15, 20°31'S 148°33'E, closed forest, pitfall, 10 May-15 Aug 2007, R. J. Raven, QM S85024; ♀, Proserpine, track N off Airport Drive, site XY11, 20°29'S 148°33'E, closed woodland, pitfall, 15 Aug-5 Nov 2007, R. Raven, C. Burwell, QM S85934; ♂, Proserpine, track N off Airport Drive, site XY11, 20°29'S 148°33'E, closed woodland, pitfall, 16 Feb-10 May 2007, R. J. Raven, QM S85001; ♂ 2j, Proserpine, track N off Airport Drive, site XY11, 20°29'S 148°33'E, closed woodland, pitfall, 10 May-15 Aug 2007, R. Raven, N. Power, QM S80936; ♂, Ransome Reserve (BCC1), 27°29'S 153°11'E, casuarina woodland, pitfall, 30 Oct-1 Dec 2003, QM party, QM S69836; ♂, Rochedale SF, 27°37'S 153°09'E, open woodland, pitfall, 31 Jan-14 Feb 1980, V. Davies, R. Raven, QM S18624; ♂ 2j, Rochedale SF, Brisbane, 27°37'S 153°09'E, pitfall, 07-20 Aug 1979, R. Raven, V. Davies, QM S44117; ♀, Rochedale SF, Brisbane, 27°37'S 153°09'E, pitfall, 20 Sep-11 Oct 1979, R. Raven, V. Davies, QM S39335; ♂, Rochford Scrub, site 6, 20°07'S 146°37'E, bendee scrub, flight intercept trap, 12 Dec 2006-11 Feb 2007, G. Monteith, D. Cook, QM S76719; ♀, Rockhampton, 23°22'S 150°32'E, bite, spider bite, 13 Nov 2000, W. Willing, QM S54268; ♂, S of Clarke R xing, 19°14'S 145°28'E, open forest, pitfall, 27 Sep-17 Dec 2006, R. Raven, A. Amey, G. Monteith, D. Cook, QM S79095; ♂ 2j, Split Yard Ck, 27°23'S 152°38'E, vine scrub, human dung trap, 27 Dec 1998-13 Jan 1999, Monteith, Thompson, Cook, QM S50097; ♂, St Lucia, Briabane, 28°27'S 153°01'E, mid Apr 1975, R. J. Raven, QM S33717; ♂ ♀, Stafford, Brisbane, 27°25'S 153°01'E, No date, QM S39359; ♂, Stony Ck via Samford, 27°20'S 152°48'E, open forest, intercept flight trap, 22 Oct 1994-2 Feb 1995, G. Monteith, H. Janetzki, QM S50711; ♂, Stony Ck via Samford, 27°20'S 152°48'E, rainforest, intercept flight trap, 2 Feb-8 Apr 1995, G. Monteith, H. Janetzki, QM S32109; ♀, Stradbroke I, 27°35'S 153°27'E, heathland, 02 May 1976, P. Davie, QM S39471; ♀, Strathpine Gardens, Brisbane, 27°28'S 153°01'E, spider bite, 14 Nov 1996, E. Stachurski, QM S33662; ♂ ♀, Strathpine, Brisbane, 27°28'S 153°01'E, 2 Mar 1977, EM Beckman, QM S18598; ♂ 2j, Taroom district, 7km N (BS 34),

25°36'S 149°46'E, ooline scrub, pitfall, 12 Nov 1996-13 Jan 1997, P. Lawless, QM S36680; ♂, Taroom district, Boggomoss #10, 25°31'S 150°03'E, pitfall, 11 Nov 1996-Jan 1997, G. Monteith, D. Cook, QM S36191; ♀, Taroom District, Boggomoss (No.21), 25°27'S 150°03'E, pitfall, 10 Nov 1996-13 Jan 1997, P. Lawless, QM S36598; ♂, Taroom District, Boggomoss (No.21), 25°27'S 150°03'E, pitfall, 10 Nov 1996-13 Jan 1997, P. Lawless, QM S36601; ♀, Taroom district, Boggomoss (No.3), 25°26'S 150°01'E, pitfall, 12 Nov 1996-12 Jan 1997, G. Monteith, D. Cook, QM S36353; 1p, Taroom District, Boggomoss No 21, 25°27'S 150°03'E, baited flight trap, 11 Nov 1996-Jan 1997, G. Monteith, D. Cook, QM S36198; ♂, Taroom District, Boggomoss No 21, 25°27'S 150°03'E, baited flight trap, 11 Nov 1996-Jan 1997, G. Monteith, D. Cook, QM S36197; ♂ 1p, Taroom district, Boggomoss No 3, 25°26'S 150°01'E, baited flight trap, 12 Nov 1996-12 Jan 1997, G. Monteith, D. Cook, QM S43688; ♂, Taroom district, Boggomoss No 8, 25°27'S 150°02'E, baited flight trap, 12 Nov 1996-Jan 1997, G. Monteith, D. Cook, QM S36292; ♂, Taroom district, Boggomoss #12, Nathan Gorge, 25°27'S 150°08'E, baited flight trap, 13 Nov 1996-Jan 97, G. Monteith, D. Cook, QM S43700; ♀, Taroom district, Boggomoss #12, Nathan Gorge, 25°27'S 150°08'E, baited flight trap, 13 Nov 1996- Jan 97, G. Monteith, D. Cook, QM S36219; ♂, Taroom, 11.5km N on H'way, 25°34'S 149°46'E, brigalow, pitfall, 17 Dec 1997-4 Apr 1998, G. Monteith, QM S46393; ♀, The Head, via Killarney, 28°23'S 152°19'E, 12 Jun 1973, G. May, QM S39475; ♀, Thornlands, 27°34'S 153°15'E, spider bite, 18 Jun 1984, R. Clegg, QM S39372; ♀, Thorntonia, 25k N on Gregory Downs--Camooweal Rd, 19°17'S 138°59'E, open forest, pitfall, 1 Jul-23 Sep 2006, R. Raven, B. Baehr, A. Amey, QM S77089; ♂, Toohey Forest, Brisbane, 27°28'S 153°03'E, forest, 21 Feb 1996, G. Marsh, QM S29668; ♂, Toomba Hstead site, moist litter pockets, 19°58'S 145°34'E, basalt ridge with brachychiton, litter, 15 Feb 2007, R. J. Raven, QM S79256; ♀, Top of Blackbutt Range, 26°52'S 152°11'E, rainforest, flight intercept trap, 24 Nov 1995-3 Feb 1996, G. Monteith, QM S60622; ♀, Tringabah, 20 Oct 1908, QM S39352; ♂, Tungi Ck, via Jimna, 26°40'S 152°28'E, rainforest, intercept flight trap, 18 Dec 1996-20 Jan 1997, G. Monteith, QM S39369; ♂, U Brookfield, 27°30'S 152°55'E, rainforest, pitfall, 1 Sep-6 Oct 1981, R. J. Raven, QM S31550; ♂, Upper Caboolture, 27°05'S 152°57'E, spider bite, 25 Mar 1997, Melissa Phillips, QM S35194; ♂, W of Myola Stn on ridge, 20°04'S 145°28'E, lancewood and fig, open forest, pitfall, 28 Sep-17 Dec 2006, R. Raven, A. Amey, B. Baehr, QM S79041; ♀, Weengallon, Bore end, 28°22'S 149°03'E, 11 Jan 1979, V. Davies, T. Adams, R. Raven, QM S39361; ♀, Winchester Stn nr Moranbah, 22°00'S 148°03'E, 11 Nov 1983, A. Rozefelds, K. Williamson, QM S39357; ♂, Windsor Tableland, SE O/F, 16°17'S 145°05'E, open forest, pitfall, 9 Feb-17 May 1998, G. Monteith, D. Cook, QM S60112; ♂, Winton, 22°23'S 143°02'E, 12 Apr 1912, Higgins, QM S39472; ♂, Woodmillar (East), 25°41'S 151°36'E, vine scrub, pitfall, 10 Oct-17 Dec 1998, G. Monteith, C. Gough, QM S50062; ♀, Wynnum, Brisbane, 27°28'S 153°03'E, Apr 1988, L. E. Fabian, QM S6308; ♂ ♀, Yarraman, 26°51'S 152°00'E, rainforest, flight intercept trap, 7 Jan-2 Mar 1992, D. J. Cook, QM S25005; ♂, Yarraman, Cooyar Ra, 26°52'S 151°54'E, rainforest, flight intercept trap, 7 Jan-2 Mar 1992, D. J. Cook, QM S25019; ♂, Yarraman, Cooyar Ra, 26°52'S 151°54'E, rainforest, intercept flight trap, 1 Dec 1991-7 Jan 1992, D. J. Cook, QM S31636; ♂, Zillmere, 27°22'S 153°02'E, house, 18 Mar 1973, D. Gleason, QM S39351.

Nyssus albopunctatus (Hogg, 1896)

Material Examined

New South Wales. ♂, Gubatta (site 3G), 33°35'S 146°35'E, pitfall, 24-28 Feb 1999, D. Driscoll, QM S51550; ♂, Taleeban (site 10T), 33°57'S 146°25'E, woodland, pitfall, 12-18 Oct 1999, D. Driscoll, QM S53234; ♂ 1j, Taleeban (site 8T), 33°53'S 146°28'E, road verge, pitfall, 3-10 Nov 1999, D. Driscoll, QM S53751; ♂, Taleeban (site 9T), 33°52'S 146°25'E, spinifex, pitfall, 3-10 Nov 1999, D. Driscoll, QM S53528; ♂, Broken Hill, 17 mls S, 19 May 1974, P. Christy, QM S51322; ♀, Mt McKenzie, 9km SW of Tenterfield, 22 Nov 2001, L. W. Popple, QM S73818; ♂, Pulletop (site 3P), 34°01'S 146°04'E, pitfall, 12-18 Oct 1999, D. Driscoll, QM S53698; ♀, Rankin Springs. Mallee Study (10G), 18 Nov 1999, D. Driscoll, QM S45823; ♂, Gubatta (site 4G), 33°32'S 146°31'E, spinifex, pitfall, 24-28 Feb 1999, D. Driscoll, QM S50835; ♂, Gubatta (site 6G), 33°32'S 146°32'E, spinifex, pitfall, 4-16 Dec 1999, D. Driscoll, QM S53849; ♀, Bilpin, 6km NE of, 33°30'S 150°31'E, 3 May 1982, N. W. Rodd, QM S51021; ♀, Pulletop (site 3P), 34°01'S 146°04'E, pitfall, 12-18 Oct 1999, D. Driscoll, QM S53304.

SOUTH AUSTRALIA. ♂, Calperum HS, 12km SW, 34°07'S 140°38'E, chenopod scrubland, pitfall & intercept traps, 28 Feb-28 Mar 1995, K. R. Pullen, QM S43702; ♂, Renmark, 31k NW, 33°59'S 140°30'E, mallee, flight/ground intercept trap, 30 Mar-2 May 1995, K. R. Pullen, QM S32132; ♂ ♀, Renmark, 32k N, 33°53'S 140°44'E, chenopod scrubland, flight/ground intercept trap, 29 Mar-3 May 1995, K. R. Pullen, QM S32139; ♀,

Renmark, 32k N, 33°53'S 140°44'E, chenopod scrubland, pitfall & intercept traps, 29 Mar-3 May 1995, K. R. Pullen, QM S32652.

TASMANIA. 2♂, Peters Link Rd, 20km E of site A (site B), 41°09'S 148°08'E, Nov 1993, P. Cranston, J. Truman, QM S32133, QM S32131; ♂, Emu River,.TAS, 2 Dec 1972, QM S51323. **Northern Territory**: ♂, Stokes Ck, left branch Watarrka NP, 16 Mar 1995, T. Weir, QM S32129. **Queensland**: ♂, Blackbutt Ra, Benarkin, 26°52'S 152°11'E, rainforest, pitfall, 10 Nov 1974-11 Jan 1975, G. & S. Monteith, QM S30614; ♀, Home Rule, 15°44'S 145°18'E, pitfall, 28 Oct-18 Nov 1974, V. E.Davies, QM S39495; ♀, Mt Cleveland, summit, 19°15'S 147°01'E, open forest, 22-24 Mar 1991, G. Monteith, D. Cook, QM S17922; ♂ ♀, Mt Windsor Tbld, Whypalla SF, 16°12'S 144°58'E, open forest, pitfall, Summer 92/93, S. Burnett, QM S39582; ♀, Mt Windsor Tbld, Whypalla SF, 16°12'S 144°58'E, open forest, pitfall, Summer 92/93, S. Burnett, QM S22657; ♂, Mt Windsor Tbld, Whypalla SF, 16°12'S 144°58'E, open forest, pitfall, Summer 92/93, S. Burnett, QM S22658; ♂ ♀, Mt Windsor Tbld, Whypalla SF (pitfalls 6-10), 16°12'S 144°58'E, ironbark woodland, pitfall, Summer 1992/93, S. Burnett, QM S33171; ♂, Mt Windsor Tbld, Whypalla SF (pitfalls 6-10), 16°12'S 144°58'E, ironbark woodland, pitfall, Summer 1992/93, S. Burnett, QM S39579; ♀ j, Beerwah Forestry Reserve, 26°51'S 152°57'E, open eucalypt forest, pitfall, M. Glover, QM S19484; ♀, Beerwah Forestry Reserve, 26°51'S 152°57'E, M. Glover, QM S19154; ♀, Beerwah Forestry Reserve, 26°51'S 152°57'E, M. Glover, QM S19182; ♀, Beerwah Forestry Reserve, 26°51'S 152°57'E, M. Glover, QM S19434; ♀, Beerwah Forestry Reserve, 26°51'S 152°57'E, rainforest, pitfall, 16 May 1990, M. Glover, QM S18941; ♀, Beerwah Forestry Reserve (A3), 26°51'S 152°57'E, wallum, pitfall, 4-24 Apr 1990, M. Glover, QM S16601; 1, Beerwah Forestry Reserve (A4), 26°51'S 152°57'E, heathland, pitfall, 12 Dec 1990, M. Glover, QM S32601; 1j, Beerwah Forestry Reserve (A4), 26°51'S 152°57'E, heathland, 27 Jun 1990, M. Glover, QM S32147; ♀, Beerwah Forestry Reserve (B1), 26°51'S 152°57'E, heathland, pitfall, 24 Apr 1991, M. Glover, QM S32605; ♂ 4j, Beerwah Forestry Reserve (B3), 26°51'S 152°57'E, heathland, pitfall, 24 Apr 1991, M. Glover, QM S32607; ♀, Beerwah Forestry Reserve (C3), 26°51'S 152°57'E, heathland, pitfall, 19 Sep 1990, M. Glover, QM S32579; ♀ 4j, Beerwah Forestry Reserve (C3), 26°51'S 152°57'E, heathland, pitfall, 24 Apr 1991, M. Glover, QM S32582; ♂ ♀, Beerwah Forestry Reserve (C3), 26°51'S 152°57'E, heathland, pitfall, 10 Oct 1990, M. Glover, QM S32577; ♀, Beerwah Forestry Reserve (C4), 26°51'S 152°57'E, heathland, pitfall, 26 Jun 1991, M. Glover, QM S32584; 2j, Beerwah Forestry Reserve (C4), 26°51'S 152°57'E, heathland, pitfall, 24 Apr 1991, M. Glover, QM S32585; ♀, Beerwah Forestry Reserve (C5), 26°51'S 152°57'E, heathland, pitfall, 19 Sep 1990, M. Glover, QM S32586; ♀, Beerwah Forestry Reserve (C5), 26°51'S 152°57'E, heathland, pitfall, 26 Jun 1991, M. Glover, QM S32587; ♀, Beerwah Forestry Reserve (C5), 26°51'S 152°57'E, heathland, pitfall, 24 Apr 1991, M. Glover, QM S32610; 1j, Beerwah Forestry Reserve (D1), 26°51'S 152°57'E, heathland, pitfall, 24 Apr 1991, M. Glover, QM S32589; ♂ ♀, Beerwah Forestry Reserve (D4), 26°51'S 152°57'E, heathland, pitfall, 19 Sep 1990, M. Glover, QM S32151; 4j, Beerwah Forestry Reserve (D5), 26°51'S 152°57'E, heathland, pitfall, 24 Apr 1991, M. Glover, QM S32596; 1j, Beerwah Forestry Reserve (A4), 26°51'S 152°57'E, heathland, pitfall, 18 Jul 1990, M. Glover, QM S32608; ♀ 3j, Beerwah Forestry Reserve (A4), 26°51'S 152°57'E, heathland, pitfall, 27 Feb 1991, M. Glover, QM S32603; ♀, Beerwah Forestry Reserve (B3), 26°51'S 152°57'E, heathland, pitfall, 27 Feb 1991, M. Glover, QM S32609; 1j, Beerwah Forestry Reserve (C1), 26°51'S 152°57'E, heathland, pitfall, 25 Aug 1991, M. Glover, QM S32571; ♀, Beerwah Forestry Reserve (C2), 26°51'S 152°57'E, heathland, pitfall, 29 Aug 1990, M. Glover, QM S32574; 1j, Beerwah Forestry Reserve (C2), 26°51'S 152°57'E, heathland, pyr kndn logs rocks trunks, 25 Aug 1991, M. Glover, QM S32573; ♀, Beerwah Forestry Reserve (C3), 26°51'S 152°57'E, heathland, pitfall, 18 Jul 1990, M. Glover, QM S32578; 1j, Beerwah Forestry Reserve (C3), 26°51'S 152°57'E, heathland, pitfall, 27 Feb 1991, M. Glover, QM S32583; 1j, Beerwah Forestry Reserve (C3), 26°51'S 152°57'E, heathland, pitfall, 27 Feb 1991, M. Glover, QM S32570; 1, Beerwah Forestry Reserve (C4), 26°51'S 152°57'E, 27 Feb 1991, M. Glover, QM S32170; 1j, Beerwah Forestry Reserve (D1), 26°51'S 152°57'E, heathland, pitfall, 27 Feb 1991, M. Glover, QM S32588; 1j, Beerwah Forestry Reserve (D4), 26°51'S 152°57'E, heathland, pitfall, 27 Feb 1991, M. Glover, QM S32592; ♀, Binna Burra, Lamington NP, 28°12'S 153°11'E, Aug 1974, R. Monroe, QM S39487; ♂, Black Mtn, 15°41'S 145°13'E, 31 Oct 1971, N. Clyde Coleman, QM S39502; ♂ 1j, Black Rock Scrub, 28°07'S 152°39'E, rainforest, pitfall, 2 Dec 2000-13 May 2001, G. Monteith, QM S56934; ♀ 2j, Blackbutt Ra summit, 5km E Benarkin, 26°52'S 152°11'E, rainforest, pitfall & intercept traps, 29 Jul-23 Oct 1995, G. Monteith, QM S32116; ♀, Blackdown Tableland, 23°50'S 149°03'E, 1-6 Feb 1981, R. J. Raven, QM S39497; ♀ 1j, Boat Mt EP, summit, 26°09'S 151°59'E, vine scrub, pitfall, 26 Jan-20 Apr 1995, G. Monteith, QM S32108; ♀, Brookfield, Gold Ck Reservoir, 27°30'S 152°55'E, pitfall, 1 Oct 1980, V. Davies, R. Raven, QM S39494; ♀, Brookfield, Gold Ck Reservoir,

27°30'S 152°55'E, closed forest, pitfall, 30 Oct-4 Nov 1980, V. Davies, R. Raven, QM S39492; ♀, Burnett Ck, Boonah, 28°00'S 152°41'E, on bark, 21 Apr 1971, G. May, QM S39488; 1p, Burnett Ra, via Tansey, 25°56'S 152°06'E, rainforest, pitfall, 29 Aug-13 Dec 1976, G. & S. Monteith, QM S39482; ♂, Bushley Stn (DW12), 23°32'S 150°15'E, open forest, pitfall, 3 Sep 1991, D. Wallace, R. Raven, QM S32115; ♀, Cabbage Tree Ck, No 6 Taroom, 25°27'S 150°01'E, 13 Sep 1996, H. Janetzki P. Lawless D. Potter, QM S36466; ♀ 2j, Cape Tribulation, 16.2km N Pilgrim Sands (NQ23), 15°59'S 145°26'E, casuarina woodland, pitfall, 28 Nov 1992-18 Apr 1993, R. Raven, P. Lawless, M. Shaw, QM S32127; ♀, Cape Upstart (NQ1/1), Station Hill, 19°47'S 147°50'E, pitfall, 25 Oct 1991-2 Jul 1992, P. Lawless, R. Raven, M. Shaw, QM S21797; , Cardwell Gap, (NQ 5), 18°32'S 146°11'E, pitfall, 24 Sep-25 Nov 1992, R. Raven, P. & E. Lawless, M. Shaw, QM S24893; ♀, Conway NP, 20°17'S 148°46'E, rainforest, pitfall, 28 Jul 1992-3 Dec 1992, R. Raven, P. & E. Lawless, M. Shaw, QM S22872; ♀, Cooloola, 26°12'S 153°03'E, Apr 1978, G. Monteith, QM S39506; ♂ ♀, Currumbin, 28°12'S 153°24'E, 11 Jan 1980, D. Seeton, QM S39581; ♀ 1p1j #Dawson R, Nathan Gorge, Taroom, 25°27'S 150°08'E, riverine rainforest, pitfall, 15 Jun 1996-12 Sep 1996, P. Lawless, H. Janetzki, D. Potter, QM S37262; ♀, Dawson R, Nathan Gorge, Taroom, 25°27'S 150°08'E, riverine rainforest, pitfall, 15 Jun 1996-12 Sep 1996, P. Lawless, QM S37258; ♀, Doboy Ck, 17 Dec 1979, D. Seeton, QM S39490; ♀, Eight Mile Ck (NQ 31/1), 18°41'S 144°42'E, eucalypt woodland, pitfall, 6 Nov 1991-26 Jul 1992, P. Lawless, R. Raven, M. Shaw, QM S21851; ♀ 5j, Emmett Ck area, S of Townsville (NQ 4), 19°27'S 147°24'E, pitfall, 27 Jul-2 Dec 1992, R. Raven, P. & E. Lawless, M. Shaw, QM S24746; 1, Ewan Maddock Dam, 26°48'S 152°59'E, open woodland, pitfall, 22 Feb-23 Jun 1993, M. Glover, QM S32126; 1j, Ewan Maddock Dam (site B), 26°48'S 152°59'E, open forest, pitfall, 27 Oct 1992-30 Jan 1993, M. Glover, QM S32119; 1j, Ewan Maddock Dam (site B), 26°48'S 152°59'E, open forest, pitfall, 27 Oct 1992-30 Jan 1993, M. Glover, QM S32164; ♀, Ewan Maddock Dam (site D), 26°48'S 152°59'E, closed forest, pitfall, 21 Nov 1992-22 Feb 1993, M. Glover, QM S32149; 2j, Ewan Maddock Dam (site D), 26°48'S 152°59'E, closed forest, pitfall, 21 Nov 1992-22 Feb 1993, M. Glover, QM S32157; ♀, Ewan Maddock Dam (site E), 26°48'S 152°59'E, pitfall, 18 Jul 1993-21 Nov 1993, M. Glover, QM S32136; ♀, Ewan Maddock Dam (site E), 26°48'S 152°59'E, pitfall, 18 Jul 1993-21 Nov 1993, M. Glover, QM S32162; ♀, Ewan Maddock Dam (site E/2), 26°48'S 152°59'E, heathland, pitfall, 21 Nov 1993-22 Mar 1994, M. Glover, QM S32613; 1j, Ewan Maddock Dam (site E/3), 26°48'S 152°59'E, heathland, pitfall, 30 Nov 1992-14 Mar 1993, M. Glover, QM S32279; ♀, Ewan Maddock Dam (site B), 26°48'S 152°59'E, open forest, pitfall, 3 May-22 Aug 1993, M. Glover, QM S32158; ♂ ♀, Expedition Ra NP, Amphitheatre yards, 25°13'S 149°01'E, open forest, pitfall, 19 Dec 1997-4 Mar 1998, G. Monteith, D. Cook, QM S44307; ♂ ♀, Expedition Ra NP, Amphitheatreyards, 25°13'S 149°01'E, open forest, pitfall, 27 Sep-19 Dec 1997, G. Monteith, D. Cook, QM S44797; ♀ 1j, Fig Tree Pocket, Brisbane, 27°28'S 153°03'E, pitfall, Feb 1979, V. E. Davies, QM S39513; ♂ ♀ 2p, Fraser Is:Orchid Beach (F04), 24°57'S 153°19'E, heathland, pitfall, 20 Aug-17 Dec 1997, R. Raven, P. Lawless, QM S41773; ♀ 4j, Frenchville, 23°20'S 150°34'E, open forest, pitfall, 21 Mar-3 Sep 1991, D. Wallace, R. Raven, QM S32102; ♀, Isla Gorge Lookout, 3.6km NE, 25°10'S 150°00'E, vine scrub, pitfall, 15 Dec-4 Mar 1998, G. Monteith, D. Cook, QM S44515; ♀ 3j, Karawatha Forest, 27°37'S 153°05'E, Dec 1994, David Stewart, QM S32182; ♀ 1j, Karawatha Forest, 27°38'S 153°05'E, melaleuca, 17 Dec 1994, D. Stewart, QM S32145; ♂ 2j, Karawatha Forest, 27°37'S 153°05'E, 17 Dec 1994, D. Stewart, QM S32171; ♀, Kemp Beach, Yeppoon, 23°10'S 150°48'E, semi-evergreen vine thicket, pitfall, 23 Oct 1990-22 Mar 1991, D. Wallace, R. Raven, K. Williams, QM S19611; ♀, Kroombit Tops (Site 9), Lower Dry Ck, 24°24'S 151°01'E, rainforest, pitfall, 11-18 Dec 1983, G. Monteith, V. Davies, J. Gallon, G. Thompson, QM S39541; ♀, Lamington NP, O'Reillys, 28°14'S 153°08'E, rainforest, pitfall, 31 Jan-11 Apr 1976, G. & S. Monteith, QM S39491; ♀, Meikleville Hill, Yeppoon, 23°06'S 150°43'E, vine thicket, pitfall, 18 Jul-23 Oct 1990, D. Wallace, R. Raven, K. Williams, QM S32138; ♂ 2, Mt Archer, Rockhampton, 23°20'S 150°35'E, semi-evergreen vine thicket, pitfall, 19 Jul-22 Oct 1990, D. Wallace, R. Raven, K. Williams, QM S19593; ♀, Mt Coot-tha, Brisbane, 27°29'S 152°57'E, 01 Dec 1979, R. J. Raven, QM S39499; ♂, Mt French NP, 28°00'S 152°37'E, rainforest, flight intercept trap, 29 Feb 1992-11 Apr 1992, D. J. Cook, QM S25036; ♀, Mt Mee, Neurum Ck, 27°05'S 152°42'E, rainforest, pitfall, 28 Oct 1977-20 Jan 1978, G. & S. Monteith, QM S39505; ♀, Mt Nebo, 27°23'S 152°47'E, pitfall, Dec 1978, A. Rozefelds, QM S39516; ♀ 1j, Mt Rose via Taroom, 25°25'S 149°58'E, vine scrub, pitfall, 23 Sep 1997-15 Dec 1997, D. J. Cook, QM S44505; ♀, Nangur SF (1st site), 26°08'S 151°58'E, rainforest, pitfall, 24 Oct-24 Nov 1995, G. Monteith, QM S32625; ♀ j's #North Stradbroke I, 27°35'S 153°27'E, Oct 1982, J. D. Majer, QM S43694; ♀, Olsen's Caverns (DW8), 23°10'S 150°28'E, open forest, pitfall, 3 Sep-10 Oct 1991, D. Wallace, R. Raven, QM S46033; ♀ 1j, Orchid Beach, Fraser I, 24°58'S 153°19'E, heathland, pitfall, 7 Mar-1 Oct 1996, R. J. Raven, QM S31302; ♀, Polly Ck (Hasenpusch

property), 17°28'S 146°01'E, rainforest, intercept flight trap, 7 Mar-15 May 1995, G. Monteith, J. Hasenpusch, QM S32113; 2p, Rochedale SF, 27°37'S 153°09'E, open forest, pitfall, 1-23 Nov 1979, R. Raven, V. Davies, QM S44120; ♀ 1j, Rochedale SF, 27°37'S 153°09'E, pitfall, 23 Nov-7 Dec 1979, R. Raven, V. Davies, QM S39503; 5p, Rochedale SF, 27°37'S 153°09'E, open forest, pitfall, 27 Feb-20 Mar 1980, R. Raven, V. Davies, QM S44118; ♂ ♀, Rochedale SF, 27°37'S 153°09'E, open woodland, pitfall, 31 Jan-14 Feb 1980, V. Davies, R. Raven, QM S18620; ♂ ♀, Rochedale SF, 27°37'S 153°09'E, open forest, 20 Sep 1979, V. Davies, R. Raven, QM S18634; ♀ 2p1j #Rochedale SF, Brisbane, 27°37'S 153°09'E, pitfall, 20 Sep-11 Oct 1979, R. Raven, V. Davies, QM S44112; ♀, Rocky Pt, S Miriamvale, 24°20'S 151°34'E, rainforest, pitfall, 15 Dec 1976-1 Apr 1977, G. & S. Monteith, QM S39496; ♂, Roedean St, Fig Tree Pkt, Brisbane, 27°28'S 153°01'E, pitfall, Aug 1979, V. E. Davies, QM S39511; ♀, Roedean St, Fig Tree Pkt, Brisbane, 27°28'S 153°01'E, pitfall, Jun 1979, V. E. Davies, QM S39514; ♀, Shiptons Flat, 15°48'S 145°15'E, rainforest, 1975, Mr Roberts, QM S39469; ♀, Springfield, nr Ipswich, 27°40'S 152°55'E, 19 Sep 1998, K. Walker, G. Robinson, QM S42754; ♀, Stradbroke I, 27°35'S 153°27'E, 04 Mar 1974, RJ Mackay, QM S39489; ♀, Taroom district, Boggomoss No 8, 25°27'S 150°02'E, pitfall, 12 Nov 1996-Jan 1997, G. Monteith, D. Cook, QM S36301; ♀ 2j, Taroom district, Nathan Gorge, 25°27'S 150°08'E, riverine rainforest, pitfall, 13 Nov 1996-13 Jan 1997, P. Lawless, QM S37099; ♀, Teewah Ck, Cooloola, 26°05'S 153°02'E, 31 Dec 1973, R. J. Raven, QM S39493; ♀, The Bluff, Keysland, 26°14'S 151°42'E, open forest, pitfall, 24 Oct-24 Nov 1995, G. Monteith, QM S32099; ♀, Toowoomba, 27°34'S 151°57'E, Oct 1997, Jarred Warden, QM S35499; ♂ ♀, Upper Brookfield, 27°30'S 152°55'E, rainforest, pitfall, 30 Oct-14 Nov 1980, R. Raven, V. Davies, QM S18630; ♀, Windermere, nr Glenmorgan, 27°17'S 149°45'E, pitfall, Dec 90-Sep 91, R. Raven, D. Smyth, QM S32627; ♀, Yeppoon, 5km N, Iwasaki Rndabout, 23°05'S 150°45'E, semi-evergreen vine thicket, pitfall, 1-15 Jan 1993, D. Wallace, QM S32124; ♀, Stockhaven, 3km SE, 25°48'S 151°59'E, rainforest, pitfall, 25 Jan-2 Jun 1999, G. Monteith, G. Thompson, QM S51381; ♀, Stockhaven, 3km SE, 25°48'S 151°59'E, rainforest, flight intercept trap, 10 Oct-19 Dec 1998, G. Monteith, C. Gough, QM S50057; ♂, Beerwah Forestry Reserve (C5), 26°51'S 152°57'E, heathland, pitfall, 12 Dec 1990, M. Glover, QM S43441; ♀, Bellbird Park, Ipswich, 27°37'S 152°46'E, 24 Feb 2001, Joy Tucker, QM S39791; ♂ 1j, Bellthorpe-Jimna Rd, 26°43'S 152°32'E, open forest, pitfall, 20 Jan-9 Mar 1997, G. Monteith, QM S38073; ♂ ♀, Belmont Hills Bushlands (BCC1), 27°30'S 153°07'E, dry euc woodland, pitfall, 27 May-30 Jun 2003, S. Wright, E. Volschenk, QM S62631; ♂ jjj #Belmont Hills Bushlands (BCC1), 27°30'S 153°07'E, dry euc woodland, pitfall, 31 Mar-29 Apr 2004, QM party, QM S65001; ♀, Belmont Hills Bushlands (BCC1), 27°30'S 153°07'E, dry euc woodland, pitfall, 16 Apr-27 May 2003, C. Burwell, S. Wright, E. Volschenk, QM S62488; ♂ jj, Belmont Hills Bushlands (BCC1), 27°30'S 153°07'E, dry euc woodland, pitfall, 2-29 Jan 2004, QM party, QM S65002; ♂ ♀, Belmont Hills Bushlands (BCC1), 27°30'S 153°07'E, eucalypt woodland, pitfall, 28 Jul-1 Sep 2003, QM party, QM S62223; ♂ jj, Belmont Hills Bushlands (BCC1), 27°30'S 153°07'E, dry euc woodland, pitfall, 1-31 Mar 2004, QM party, QM S65004; ♂ jj, Belmont Hills Bushlands (BCC1), 27°30'S 153°07'E, dry euc woodland, pitfall, 30 Jan-1 Mar 2004, QM party, QM S65003; ♂ ♀, Belmont Hills Bushlands (BCC1), 27°30'S 153°07'E, dry euc woodland, pitfall, 1 Sep-1 Oct 2003, QM party, QM S62370; ♀ jj, Belmont Hills Bushlands (BCC1), 27°30'S 153°07'E, dry euc woodland, pitfall, 1 Dec 2003-2 Jan 2004, QM party, QM S65000; ♂, Black Rock Scrub, 28°08'S 152°40'E, rainforest, pitfall, 6 Oct-3 Dec 2000, C. J. Burwell, QM S39822; ♂ ♀, Blackbutt Ra summit, 5km E Benarkin, 26°52'S 152°11'E, rainforest, pitfall, 24 Nov 1995-3 Feb 1996, G. Monteith, QM S37629; ♂ ♀, Blackbutt Ra summit, 5km E Benarkin, 26°52'S 152°11'E, rainforest, pitfall, 24 Oct-24 Nov 1995, G. Monteith, QM S43824; ♂ ♀ 3j, Boomer Ra, Mongrel Scrub, site 1, 23°12'S 149°46'E, semi-evergreen vine thicket, pitfall, 29 Sep-16 Dec 1999, D&I Cook, QM S60195; ♂ 1j, Boomer Ra, Mongrel Scrub, site 7, 23°12'S 149°46'E, semi-evergreen vine thicket, pitfall, 16 Dec 1999-22 Mar 2000, G. & S. Monteith, QM S57850; ♂ ♀ 1pm #Boomer Ra, Python Scrub, site 4, 23°11'S 149°44'E, semi-evergreen vine thicket, pitfall, 16 Dec 1999-22 Mar 2000, G. & S. Monteith, QM S59453; ♂ ♀ 2j, Boomer Ra, Python Scrub, site 5, 23°11'S 149°44'E, semi-evergreen vine thicket, pitfall, 29 Sep-16 Dec 1999, D&I Cook, QM S59460; ♂ ♀, Boondall Wetlands (BCC1), 27°20'S 153°04'E, melaleuca open for., pitfall, 2 Dec 2003-2 Jan 2004, QM party, QM S65010; ♂, Boondall Wetlands (BCC1), 27°20'S 153°04'E, melaleuca open for., pitfall, 1-31 Mar 2004, QM party, QM S63999; ♀, Boondall Wetlands (BCC1), 27°20'S 153°04'E, melaleuca wetland, pitfall, 2-31 Oct 2003, QM party, QM S65006; ♂ ♀, Boondall Wetlands (BCC1), 27°20'S 153°04'E, melaleuca open for., pitfall, 31 Oct-2 Dec 2003, QM party, QM S62276; ♂ ♀, Boondall Wetlands (BCC1), 27°20'S 153°04'E, melaleuca open for., pitfall, 22 Apr-26 May 2003, C. Burwell, S. Wright, E. Volschenk, QM S65008; ♂ ♀, Boondall Wetlands (BCC1), 27°20'S 153°04'E, melaleuca wetland, pitfall, 29 Jul-2 Sep 2003, QM party, QM S62274; ♀, Boondall Wetlands (BCC1), 27°20'S 153°04'E, melaleuca

open for., 20 Feb 2004, QM party, QM S63998; ♂, Boondall Wetlands (BCC1), 27°20'S 153°04'E, melaleuca open for., pitfall, 31 Mar-29 Apr 2004, QM party, QM S65011; ♂, Brisbane, Acacia Ridge, 27°28'S 153°03'E, pitfall, 2 Sep 1977, E. C. Dahms, QM S39480; ♀, Brookfield, Gold Ck Reservoir, 27°30'S 152°55'E, pitfall, 23 Apr-13 May 1981, R. Raven, V. Davies, QM S51020; ♂, Brookfield, Gold Ck Reservoir, 27°30'S 152°55'E, closed forest, pitfall, 14-28 Nov 1980, V. Davies, R. Raven, QM S51017; ♀ 2j, Buhot Ck, Burbank (BCC1), 27°35'S 153°10'E, riparian forest, hand net, 4 Mar 2004, C. J. Burwell, QM S67457; ♂, Buhot Ck, Burbank (BCC1), 27°35'S 153°10'E, coastal woodland, 6 Nov 2003, QM party, QM S67602; ♀ 2j, Buhot Ck, Burbank (BCC1), 27°35'S 153°10'E, riparian, pitfall, 30 Jan-1 Mar 2004, QM party, QM S65756; ♀, Buhot Ck, Burbank (BCC1), 27°35'S 153°10'E, riparian, pitfall, 31 Oct-1 Dec 2003, QM party, QM S65752; ♀, Buhot Ck, Burbank (BCC1), 27°35'S 153°10'E, coastal wetland, pitfall, 2 Sep-2 Oct 2003, QM party, QM S62332; ♂ ♀, Buhot Ck, Burbank (BCC1), 27°35'S 153°10'E, riparian, pitfall, 2-29 Jan 2004, QM party, QM S65755; ♂, Buhot Ck, Burbank (BCC1), 27°35'S 153°10'E, riparian, pitfall, 31 Mar-29 Apr 2004, QM party, QM S65751; ♂ ♀, Buhot Ck, Burbank (BCC1), 27°35'S 153°10'E, riparian, pitfall, 1 Dec 2003-2 Jan 2004, QM party, QM S65753; ♂ ♀, Buhot Ck, Burbank (BCC1), 27°35'S 153°10'E, coastal woodland, pitfall, 2-31 Oct 2003, QM party, QM S65749; ♂ ♀ 3j, Bulimba Ck, Carindale (BCC1), 27°30'S 153°06'E, forest redgum woodland, pitfall, 30 Jan-1 Mar 2004, QM party, QM S63997; ♂ 2j, Bulimba Ck, Carindale (BCC1), 27°30'S 153°06'E, forest redgum woodland, pitfall, 30 Oct-1 Dec 2003, QM party, QM S63993; ♂, Bulimba Ck, Carindale (BCC1), 27°30'S 153°06'E, forest redgum woodland, pitfall, 27 May-30 Jun 2003, S. Wright, E. Volschenk, QM S62775; ♂, Bulimba Ck, Carindale (BCC1), 27°30'S 153°06'E, forest redgum woodland, pitfall, 16-27 MayApr2003, C. Burwell, S. Wright, E. Volschenk, QM S63995; ♂ ♀, Bulimba Ck, Carindale (BCC1), 27°30'S 153°06'E, forest redgum woodland, pitfall, 1 Sep-2 Oct 2003, QM party, QM S62348; ♂ 1pm #Bulimba Ck, Carindale (BCC1), 27°30'S 153°06'E, forest redgum woodland, pitfall, 1-30 Oct 2003, QM party, QM S63994; ♂ ♀, Bulimba Ck, Carindale (BCC1), 27°30'S 153°06'E, red gum woodland, pitfall, 30 Jun-28 Jul 2003, S. Wright, E. Volschenk, QM S62960; #14$M, Bulimba Ck, Carindale (BCC1), 27°30'S 153°06'E, forest redgum woodland, pitfall, 31 Mar-29 Apr 2004, QM party, QM S63987; ♂ ♀, Bulimba Ck, Carindale (BCC1), 27°30'S 153°06'E, red gum woodland, pitfall, 1 Dec 2003-2 Jan 2004, QM party, QM S67456; ♂ ♀, Bulimba Ck, Carindale (BCC1), 27°30'S 153°06'E, forest redgum woodland, pitfall, 2-29 Jan 2004, QM party, QM S67410; ♂ ♀ 1pm #Bulimba Ck, Carindale (BCC1), 27°30'S 153°06'E, red gum woodland, pitfall, 28 Jul-1 Sep 2003, QM party, QM S62645; ♂ 3j, Bulimba Ck, Carindale (BCC1), 27°30'S 153°06'E, forest redgum woodland, pitfall, 1-31 Mar 2004, QM party, QM S63996; ♀, Camerons Scrub, snig track, 27°31'S 152°44'E, vine scrub, flight intercept trap, 15 Sep-11 Nov 1998, Monteith, Thompson, Cook, QM S51379; ♂, Camira, Ipswich, 27°38'S 152°55'E, Sep 1986, R. J. Raven, QM S44545; ♂, Cape Upstart (NQ1/1), Station Hill, 19°47'S 147°50'E, pitfall, 25 Oct 1991-2 Jul 1992, P. Lawless, R. Raven, M. Shaw, QM S21794; ♀, Charleville, 25 km NW, 26°16'S 146°02'E, mulga, red sandy soil, pitfall, 3-6 May 2001, G. Monteith, QM S56141; ♂ ♀ jj, Chelsea Rd Bushlands Reserve (BCC), 27°29'S 153°11'E, ironbark open forest, pitfall, 31 Mar-29 Apr 2004, QM party, QM S65246; ♀, Chelsea Rd Bushlands Reserve (BCC), 27°29'S 153°11'E, ironbark open forest, pitfall, 30 Jun-28 Jul 2003, S. Wright, E. Volschenk, QM S65242; ♂ jj, Chelsea Rd Bushlands Reserve (BCC), 27°29'S 153°11'E, ironbark open forest, pitfall, 1-31 Mar 2004, QM party, QM S65244; ♂ ♀, Chelsea Rd Bushlands Reserve (BCC), 27°29'S 153°11'E, open forest, pitfall, 30 Oct-1 Dec 2003, QMP, QM S63582; ♂ 2j, Chelsea Rd Bushlands Reserve (BCC), 27°29'S 153°11'E, ironbark open forest, pitfall, 16-27 May 2003, C. Burwell, S. Wright, E. Volschenk, QM S77263; ♂ ♀, Chelsea Rd Bushlands Reserve (BCC), 27°29'S 153°11'E, ironbark open forest, pitfall, 30 Oct-1 Dec 2003, QM party, QM S65243; ♂ ♀, Chelsea Rd Bushlands Reserve (BCC), 27°29'S 153°11'E, ironbark open forest, pitfall, 1 Dec 2003-2 Jan 2004, QM party, QM S65247; ♂ ♀, Chelsea Rd Bushlands Reserve (BCC), 27°29'S 153°11'E, open forest, pitfall, 28 Jul-1 Sep 2003, QM party, QM S62754; , Chelsea Rd Bushlands Reserve (BCC), 27°29'S 153°11'E, ironbark open forest, pitfall, 1 Sep-1 Oct 2003, QM party, QM S62863; ♂ ♀, Chelsea Rd Bushlands Reserve (BCC), 27°29'S 153°11'E, ironbark open forest, pitfall, 30 Jan-27 Feb 2004, QM party, QM S65245; ♂, Coalstoun township, 0.5km E, 25°37'S 151°54'E, vine scrub, pitfall, 28 Jan-2 Jun 1999, G. Monteith, G. Thompson, QM S52240; ♀, Cooloola, 26°12'S 153°03'E, 7 Apr 1987, K. Sadler, QM S44535; ♂ ♀ jjj #Cooloola Village trnoff, 25°58'S 146°58'E, pitfall, 8 Jul 1998, P. Lawless, I&D Wilson, QM S72539; ♂ ♀, Cooloola Village trnoff (CV1), 26°05'S 153°05'E, pitfall, 8 Jul-4 Dec 1998, R. Raven, P. Lawless, QM S53377; ♀, Cowley Beach, 1 km W, 17°42'S 146°06'E, bloodwood/wattle, baited pitfall trap, 5-11 Feb 1998, G. Monteith, D. Cook, QM S63263; ♂ ♀ jjj #Dawson R, Nathan Gorge (traps 5, 8), 25°27'S 150°08'E, riverine rainforest, pitfall, 12 Sep 1996-13 Nov 1996, P. Lawless, QM S37010; ♂, Dawson R, Nathan Gorge (traps 6, 7), 25°27'S 150°08'E, riverine rainforest,

pitfall, 12 Sep 1996-13 Nov 1996, P. Lawless, QM S37027; ♀, Doolandella, Blunder Rd, 27°37'S 152°59'E, open forest, pitfall, 1-15 Feb 2002, C. Burwell, QM S62982; ♀, Doolandella, Blunder Rd, 27°37'S 152°59'E, open forest, pitfall, 1-15 Feb 2002, C. Burwell, QM S62993; ♂, Doolandella, Blunder Rd, 27°37'S 152°59'E, open forest, pitfall, 1-15 Feb 2002, C. Burwell, QM S62990; ♀, Dwyer Creek, Imbil, 26°28'S 152°38'E, hoop pine scrub, pitfall, 24 Sep 2001-15 Jan 2001, G. Monteith, QM S60618; ♀, Eneby, 1.6 km ESE, 19°55'S 146°34'E, road verge, pitfall, 11-12 Feb 2007, G. Monteith, QM S76667; ♀, Ennogera Reservoir, site 1, 27°26'S 152°55'E, open forest, pitfall, 7 Aug-16 Oct 1999, G. Monteith, QM S56376; ♂ ♀, Enoggera Reservoir, site 1, 27°26'S 152°55'E, open forest, pitfall, 15 Mar-18 May 2000, G. Monteith, QM S56375; ♀, Enoggera Reservoir, site 1, 27°26'S 152°55'E, open forest, pitfall, 21 Dec 1999-27 Jan 2000, G. Monteith, J. Holt, QM S56373; ♂, Enoggera Reservoir, site 6, 27°26'S 152°55'E, open forest, baited pitfall trap, 30 Oct-4 Nov 1999, G. Monteith, QM S57254; ♀ 1j, Enterprise Mine, Mallee #1, 27°34'S 153°26'E, mallee, 11 Jan 2002, QMP, QM S55431; ♂ ♀ 23j #Enterprise Mine, Mallee #1, 27°34'S 153°26'E, mallee, pitfall, 8-22 Jan 2002, QMP, QM S55569; ♂, Enterprise Mine, Mallee #3, 27°35'S 153°26'E, mallee, pitfall, 8-9 Jan 2002, D. J. Cook, QM S55773; ♂ ♀ 24j #Enterprise Mine, Scribbly Gum #3, 27°36'S 153°26'E, scrubby gully, pitfall, 8-22 Jan 2002, QMP, QM S55580; ♂, Expedition Ra NP, Amphitheatre yards, 25°13'S 149°01'E, open forest, flight intercept trap, 19 Dec 1997-4 Mar 1998, G. Monteith, D. Cook, QM S52248; ♀, Footprint Scrub, site 2, 19°41'S 146°26'E, semi-evergreen vine thicket, flight intercept trap, 8 Dec 2006-10 Feb 2007, G. Monteith, D. Cook, QM S76663; ♂, Footprint Scrub, site 2, 19°41'S 146°26'E, semi-evergreen vine thicket, pitfall, 8 Dec 2006-10 Feb 2007, G. Monteith, D. Cook, QM S76615; ♀, Fraser I, Orchid Beach, Stirling Castle Dr (F05), 24°57'S 153°19'E, 6 Jul 1998, P. Lawless, I&D Wilson, QM S51918; ♀ 1j, Fraser I: Orchid Beach, Marloo Ave (FO4), 24°57'S 153°19'E, pitfall, 7 Jul-3 Dec 1998, R. Raven, P. Lawless, QM S51859; #10$M ♀ , Gold Creek Reservoir (BCC1), 27°28'S 152°52'E, spotted gum, pitfall, 26 May-30 Jun 2003, S. Wright, E. Volschenk, QM S62890; ♀, Gold Creek Reservoir (BCC1), 27°28'S 152°52'E, spotted gum, pitfall, 30 Oct-1 Dec 2003, QM party, QM S65012; ♂ jj, Gold Creek Reservoir (BCC1), 27°28'S 152°52'E, spotted gum, pitfall, 31 Mar-30 Apr 2004, QM party, QM S65014; ♂, Gold Creek Reservoir (BCC1), 27°28'S 152°52'E, spotted gum, pitfall, 1 Dec 2003-2 Jan 2004, QM party, QM S63986; ♂ ♀, Gold Creek Reservoir (BCC1), 27°28'S 152°52'E, spotted gum, pitfall, 30 Jun-28 Jul 2003, S. Wright, E. Volschenk, QM S62796; ♂, Gold Creek Reservoir (BCC1), 27°28'S 152°52'E, open forest, pitfall, 20 Apr-26 May 2003, C. J. Burwell, QM S62895; ♀ jj, Gold Creek Reservoir (BCC1), 27°28'S 152°52'E, spotted gum, pitfall, 30 Jan-1 Mar 2004, QM party, QM S65013; ♂, Gold Creek Reservoir (BCC1), 27°28'S 152°52'E, spotted gum, pitfall, 1 Sep-1 Oct 2003, QM party, QM S62422; ♂, Gold Creek Reservoir (BCC1), 27°28'S 152°52'E, open forest, pitfall, 28 Jul-1 Sep 2003, QM party, QM S62291; ♀, Goodnight Scrub, Burnett R, 25°05'S 152°00'E, rainforest, 2 Oct 1987, R. Leggett, QM S44549; ♂, Gurgeena Plateau, 25°27'S 151°22'E, open forest, pitfall, 10 Oct-19 Dec 1998, G. Monteith, C. Gough, QM S51354; ♂ ♀, Illaweena Street, Drewvale (BCC1), 27°38'S 153°03'E, scribbly gum, heath, pitfall, 1 Dec 2003-2 Jan 2004, QM party, QM S65260; ♂ ♀, Illaweena Street, Drewvale (BCC1), 27°38'S 153°03'E, scribbly gum, heath, pitfall, 2-30 Jan 2004, QM party, QM S65758; ♂ ♀, Illaweena Street, Drewvale (BCC1), 27°38'S 153°03'E, scribbly gum, heath, pitfall, 1-29 Jul 2003, S. Wright, E. Volschenk, QM S62666; ♀, Illaweena Street, Drewvale (BCC1), 27°38'S 153°03'E, scribbly gum, heath, pitfall, 2-31 Oct 2003, QM party, QM S65750; ♂ jj, Illaweena Street, Drewvale (BCC1), 27°38'S 153°03'E, scribbly gum, heath, pitfall, 17 Apr-26 May 2003, C. Burwell, S. Wright, E. Volschenk, QM S65262; ♂ ♀, Illaweena Street, Drewvale (BCC1), 27°38'S 153°03'E, scribbly gum, heath, pitfall, 31 Oct-1 Dec 2003, QM party, QM S65261; ♀, Illaweena Street, Drewvale (BCC1), 27°38'S 153°03'E, scribbly gum, heath, pitfall, 1-31 Mar 2004, QM party, QM S65759; ♂ ♀, Illaweena Street, Drewvale (BCC1), 27°38'S 153°03'E, scribbly gum, heath, pitfall, 26 May-1 Jul 2003, S. Wright, E. Volschenk, QM S65263; ♂ ♀, Illaweena Street, Drewvale (BCC1), 27°38'S 153°03'E, scribbly gum, heath, pitfall, 31 Mar-29 Apr 2004, QM party, QM S65757; ♂ ♀, Illaweena Street, Drewvale (BCC1), 27°38'S 153°03'E, scribbly gum, heath, pitfall, 30 Jan-1 Mar 2004, QM party, QM S65259; ♂ ♀, Illaweena Street, Drewvale (BCC1), 27°38'S 153°03'E, scribbly gum, heath, pitfall, 29 Jul-2 Sep 2003, QM party, QM S62177; ♀, Ipswich: Kholo, Coal Ck, 27°34'S 152°44'E, open forest, pitfall, 13 Jan-16 May 1999, G. Monteith, QM S49996; ♂ ♀ 2j, Isla Gorge NP, lookout turnoff, 25°12'S 149°58'E, open forest, pitfall, 22 Sep-15 Dec 1997, D. J. Cook, QM S50887; ♀, Johannsens Cave, 23°09'S 150°27'E, semi-evergreen vine thicket, flight intercept trap, 7 Oct-18 Dec 1999, D&I Cook, QM S57234; ♀, Johannsens Cave, 23°09'S 150°27'E, semi-evergreen vine thicket, flight intercept trap, 21 Mar-29 May 2000, G. Monteith, D. Cook, QM S57261; ♂ ♀, Johannsens Caves, 23°09'S 150°28'E, vine scrub, pitfall, 18 Dec 1999-21 Mar 2000, G. Monteith, QM S34951; ♂, Johanssens Caves, 23°09'S 150°27'E, semi-evergreen vine thicket, flight intercept trap,

18 Dec 1999-21 Mar 2000, G. & S. Monteith, QM S60189; ♂ 2j, Karawatha Forest (BCC6), 27°37'S 153°05'E, dry euc woodland, pitfall, 2-30 Jan 2004, QM party, QM S67430; ♂ ♀, Karawatha Forest (BCC6), 27°37'S 153°05'E, eucalypt woodland, pitfall, 2 Sep-2 Oct 2003, QM party, QM S62388; ♂, Karawatha Forest (BCC6), 27°37'S 153°05'E, dry euc woodland, pitfall, 26 May-1 Jul 2003, S. Wright, E. Volschenk, QM S62316; ♂ ♀, Karawatha Forest (BCC6), 27°37'S 153°05'E, dry eucalypt forest, pitfall, 31 Mar-29 Apr 2004, QM party, QM S72392; ♂ ♀, Karawatha Forest (BCC6), 27°37'S 153°05'E, eucalypt woodland, pitfall, 29 Jul-2 Sep 2003, QM party, QM S65754; ♂ ♀, Karawatha Forest (BCC6), 27°37'S 153°05'E, dry euc woodland, pitfall, 1-29 Jul 2003, S. Wright, E. Volschenk, QM S62908; ♂ ♀, Karawatha Forest (BCC6), 27°37'S 153°05'E, dry euc woodland, pitfall, 1 Dec 2003-2 Jan 2004, QM party, QM S67455; ♂ ♀, Karawatha Forest (BCC6), 27°37'S 153°05'E, dry euc woodland, pitfall, 17 Apr-26 May 2003, C. Burwell, S. Wright, E. Volschenk, QM S62702; ♂ ♀, Karawatha Forest (BCC6), 27°37'S 153°05'E, eucalypt woodland, pitfall, 2-31 Oct 2003, QM party, QM S67454; ♂, Karawatha Forest (BCC6), 27°37'S 153°05'E, dry euc woodland, pitfall, 31 Oct-1 Dec 2003, QM party, QM S67458; ♂, Keysland Bluff, 26°14'S 151°42'E, semi-evergreen vine thicket, flight intercept trap, 24 Nov 1995-3 Feb 1996, G. Monteith, QM S60627; ♀, Kroombit Tops, 24°22'S 151°01'E, open forest, 23 Feb 1982, R. J. Raven, QM S44544; ♀, Kroombit Tops (Site 11, N escarp.), 24°22'S 151°01'E, open forest, pitfall, 11-18 Dec 1983, G. Monteith, V. Davies, J. Gallon, G. Thompson, QM S44540; ♂, Kroombit Tops (site 13), 24°22'S 151°01'E, open forest, pitfall, 12-18 Dec 1983, G. Monteith, V. Davies, J. Gallon, G. Thompson, QM S44537; ♀, Kroombit Tops, Beauty Spot 98, 24°22'S 151°01'E, open forest, 03-4 Feb 1984, Monteith, Hagen, Yeates, QM S44542; ♀, Kroombit Tops, Lower Dry Ck (Site 7), 24°22'S 151°01'E, rainforest, pitfall, 11-18 Dec 1983, G. Monteith, V. Davies, J. Gallon, G. Thompson, QM S44538; ♀, Kroombit Tops, Upper Junct. TA47 Ck, 24°22'S 151°01'E, open forest, 9-19 Dec 1983, V. Davies J. Gallon, QM S44541; 4j, Lake Broadwater (Site 1), 27°21'S 151°06'E, pitfall, 25 Feb-22 Apr 1986 Museum & M. Bennie, QM S50478; ♂ ♀, Lake Broadwater (Site 1), 27°21'S 151°06'E, pitfall, 16 May-23 Nov 1985, QM S50461; jjj #Lake Broadwater (Site 1), 27°21'S 151°06'E, pitfall, 3 Jan-25 Feb 1986 Museum & M. Bennie, QM S50462; ♂ ♀, Lake Broadwater (site 7), 27°21'S 151°06'E, river gums, pitfall, 16 May-23 Nov 1985, G. Thompson, QM S43705; ♂, Lake Broadwater, Site 2, 27°21'S 151°06'E, pitfall, 17 May-24 Nov 1985 Museum & M. Bennie, QM S50441; ♂ ♀, Lake Moondarra, Mt Isa, 20°40'S 139°30'E, open forest, pitfall, 17 Apr-25 Jul 1996, R. Raven, R. McKay, QM S31205; ♂ ♀, Lota Ck, Manly, 27°28'S 153°11'E, mangrove, pitfall, 26 Jan-20 Feb 2005, R. J. Raven, QM S72243; ♂ ♀, Millstream Falls, 17°43'S 145°26'E, open forest, human dung trap, 05-7 Dec 1998, G. Monteith, D. Cook, QM S49944; ♀, Moranbah, 5km S of, 22°02'S 148°03'E, scrub, pitfall, 20 Dec 1997-26 Apr 1998, G. Monteith, QM S49941; ♂ ♀, Mt Archer (DW 13), 23°20'S 150°35'E, open forest, pitfall, 4 Sep-11 Nov 1991, D. Wallace, R. Raven, QM S46019; ♀, Mt Archer (DW 13), 23°20'S 150°35'E, open forest, pitfall, 18 Jul-22 Oct 1990, D. Wallace, R. Raven, K. Williams, QM S31637; ♂, Mt Bassett, 3 km NNE, 26°25'S 148°54'E, softwood scrub, pitfall, 13 Dec 2001-5 Mar 2002, G. Monteith, D. Cook, QM S79682; ♂, Mt Beecher, 0.5km NW, 23°55'S 151°11'E, vine scrub, flight intercept trap, 15 Dec 1999-20 Mar 2000, G. Monteith, QM S53332; ♂, Mt Beecher, 0.5km NW, 23°55'S 151°11'E, semi-evergreen vine thicket, pitfall, 14 Dec 1999-20 Mar 2000, G. & S. Monteith, QM S57264; ♀, Mt Cotton, 27°37'S 153°13'E, rainforest, pitfall, 3 Sep-12 Dec 1997, G. Monteith, QM S32503; ♀, Mt Debatable, 1.5km NE, 25°37'S 151°34'E, open forest, pitfall, 27 Jan-2 Jun 1999, G. Monteith, G. Thompson, QM S51206; ♀, Mt Deongwar, 3km S (site 1), 27°14'S 152°15'E, wet sclerophyll, pitfall, 14 Oct-30 Dec 1998, G. Monteith, D. Cook, QM S50105; ♂, Mt Gavial, 1km S, 23°36'S 150°28'E, open forest, pitfall, 14 Mar-28 Jun 1999, D. J. Cook, QM S56132; ♀, Mt Gavial, 1km S, 23°36'S 150°29'E, open forest, flight intercept trap, 17 Dec 1998-14 Mar 1999, D. J. Cook, QM S51211; ♀, Mt Kandanga, summit, 26°27'S 152°34'E, wet sclerophyll, pitfall, 24 Sep 2001-15 Jan 2001, G. Monteith, QM S60631; ♀, Mt Kandanga, summit, 26°27'S 152°34'E, wet sclerophyll, flight intercept trap, 24 Sep 2001-15 Jan 2001, G. Monteith, QM S60629; ♂ ♀, Mt Moffatt NP, Foleys Spring, 24°56'S 148°08'E, eucalypt woodland, pitfall, 23 Aug 2001-21 Jan 2002, C. Eddie, R. Perry, G. Graham, QM S72748; ♀, Mt Moffatt NP, Peawaddy Gorge, 25°55'S 148°04'E, 24 Sep 1986, M. Bennie, QM S15996; ♀, Mt Pollux, SW base, site 1, 22°28'S 147°52'E, brigalow, intercept flight trap, 12 Jan-5 Mar 2006, C. J. Burwell, QM S72665; ♂ ♀ 1pm, Mt Salmon, 9.5km NE on road, 23°11'S 150°07'E, vine scrub, pitfall, 1 Jul-28 Sep 1999, G. Monteith, D. Cook, QM S53423; ♀, Mt Tamborine, 27°56'S 153°12'E, 20 Jul 2004, M. J. Russell, QM S66271; ♂, Mulgowie, 27°44'S 152°22'E, 26 Aug 1981, M. Grant, QM S51018; ♂ ♀ 1p, Mulgowie, 27°44'S 152°22'E, 19 May 1981, M. Grant, QM S51019; ♀, Nipping Gully, 25°40'S 151°26'E, open forest, pitfall, 25 Jan-2 Jun 1999, G. Monteith, G. Thompson, QM S52255; ♀, Nob Ck, 22°41'S 149°58'E, pitfall, summer 1994/5, D. Wallace, Healy, QM S59586; ♂ 1j, Nob Ck, 22°52'S 150°37'E, pitfall, Jan 1994, D. Wallace, Healy, QM S39555;

♂, Nth Stradbroke Is, (E of Myora, W of Amity tnoff), 27°35'S 153°27'E, Sep 2001, R. Raven, B. Baehr, QM S59780; ♂, Oakview S. F., 26°08'S 152°20'E, rainforest, pitfall, 12 Dec 1997-26 Apr 1998, H. Janetzki, QM S59413; ♂ ♀, Oakview SF, 26°08'S 152°20'E, vine scrub, pitfall, 25 Sep-12 Dec 1997, H. Janetzki, QM S31719; ♂ ♀, Passchendaele SF, Turkey Gully, 28°31'S 151°50'E, open forest, pitfall, 21-24 Feb 2001, D. J. Cook, QM S39811; ♀, Perrys Knob, 27°36'S 152°36'E, vine scrub, pitfall, 11 Nov 1998-13 Jan 1999, Monteith, Thompson, Cook, QM S50077; ♂ ♀, Perrys Knob, 27°36'S 152°36'E, vine scrub, pitfall, 15 Sep-11 Nov 1998, Monteith, Thompson, Cook, QM S51383; ♂ ♀, Polly Ck, 17°28'S 146°02'E, pitfall & intercept traps, 12 Sep 1991-22 Oct 1991, G. Monteith, H. Janetzki, QM S43406; ♂, Proserpine, Airport Drive, site XY12, 20°29'S 148°34'E, closed woodland, pitfall, 5 Nov 2007-13 Feb 2008, R. J. Raven, QM S85625; ♀, Proserpine, Airport Drive, site XY12, 20°29'S 148°34'E, closed woodland, pitfall, 5 Nov 2007-13 Feb 2008, R. J. Raven, QM S85311; ♀, Proserpine, Airport Drive, site XY12, 20°29'S 148°34'E, closed woodland, pitfall, 16 Feb-10 May 2007, R. J. Raven, QM S85130; ♂, Proserpine, Airport Drive, WSC track, site XY13, 20°29'S 148°34'E, closed woodland, pitfall, 13 Feb-12 Mar 2008, R. J. Raven, QM S85409; ♂, Proserpine, Airport Drive, WSC track, site XY13, 20°29'S 148°34'E, closed woodland, pitfall, 11-16 Feb 2007, R. J. Raven, QM S85368; ♂ ♀, Proserpine, Deadman Creek, site XY17, 20°30'S 148°33'E, open forest, pitfall, 15 Aug-6 Nov 2007, R. Raven, C. Burwell, QM S85227; ♂, Proserpine, Deadman Creek, site XY17, 20°30'S 148°33'E, open forest, pitfall, 10 May-15 Aug 2007, R. J. Raven, QM S79990; ♂, Proserpine, Lilypool Site, site XY18, 20°30'S 148°33'E, closed forest, pitfall, 16 Feb-10 May 2007, R. J. Raven, QM S85154; ♂ ♀ 1j, Proserpine, Lilypool Site, site XY18, 20°30'S 148°33'E, closed forest, pitfall, 10 May-15 Aug 2007, R. J. Raven, QM S79949; ♂, Proserpine, Lilypool Site, site XY18, 20°30'S 148°33'E, closed forest, pitfall, 5 Nov 2007-12 Mar 2008, R. J. Raven, QM S85277; ♂, Proserpine, nr Kelsey Substation, site XY19, 20°23'S 148°32'E, closed forest, pitfall, 17 Feb-10 May 2007, R. J. Raven, QM S85052; ♂, Proserpine, nr Kelsey Substation, site XY19, 20°23'S 148°32'E, closed forest, pitfall, 13 Feb-12 Mar 2008, R. J. Raven, QM S85462; ♀ 1, Proserpine, Thompson Creek, site XY14, 20°30'S 148°34'E, closed forest, pitfall, 10 May-15 Aug 2007, R. J. Raven, QM S80918; ♂ ♀, Proserpine, Thompson Creek, site XY14, 20°30'S 148°34'E, closed forest, pitfall, 5 Nov 2007-13 Feb 2008, R. J. Raven, QM S85645; ♂, Proserpine, Thompson Creek, site XY15, 20°31'S 148°33'E, closed forest, pitfall, 11-16 Feb 2007, R. J. Raven, QM S85481; ♂ ♀, Proserpine, Thompson Creek, site XY15, 20°31'S 148°33'E, closed forest, pitfall, 6 Nov 2007-13 Feb 2008, R. J. Raven, QM S85375; ♂, Proserpine, Thompson Creek, site XY15, 20°31'S 148°33'E, closed forest, pitfall, 6 Nov 2007-13 Feb 2008, R. J. Raven, QM S85346; ♂, Proserpine, Thompson Creek, site XY15, 20°31'S 148°33'E, closed forest, pitfall, 16 Feb-10 May 2007, R. J. Raven, QM S85181; ♂, Proserpine, Thompson Creek, site XY16, 20°33'S 148°30'E, rainforest, pitfall, 15 Aug-6 Nov 2007, R. Raven, C. Burwell, QM S85886; ♀, Proserpine, Thompson Creek, site XY16, 20°33'S 148°30'E, rainforest, pitfall, 10 May-15 Aug 2007, R. J. Raven, QM S85043; ♂, Proserpine, track N off Airport Drive, site XY11, 20°29'S 148°33'E, closed woodland, pitfall, 16 Feb-10 May 2007, R. J. Raven, QM S85000; ♂, Proserpine, track N off Airport Drive, site XY11, 20°29'S 148°33'E, closed woodland, pitfall, 13 Feb-12 Mar 2008, R. J. Raven, QM S85297; ♂ 3, Proserpine, track N off Airport Drive, site XY11, 20°29'S 148°33'E, closed woodland, pitfall, 10 May-15 Aug 2007, R. Raven, N. Power, QM S80935; ♂, Proserpine, track N off Airport Drive, site XY11, 20°29'S 148°33'E, closed woodland, pitfall, 15 Aug-5 Nov 2007, R. Raven, C. Burwell, QM S85935; ♀, Proserpine, track N off Airport Drive, site XY11, 20°29'S 148°33'E, closed woodland, pitfall, 5 Nov 2007-13 Feb 2008, R. J. Raven, QM S85487; ♂, Proserpine, track N off Airport Drive, site XY11, 20°29'S 148°33'E, closed woodland, pitfall, 10-16 Feb 2007, R. J. Raven, QM S85470; ♂ ♀, Ransome Reserve (BCC1), 27°29'S 153°11'E, casuarina woodland, pitfall, 28 Jul-1 Sep 2003, QM party, QM S62785; ♀, Ransome Reserve (BCC1), 27°29'S 153°11'E, casuarina woodland, pitfall, 1 Sep-1 Oct 2003, QM party, QM S62494; ♀, Ransome Reserve (BCC1), 27°29'S 153°11'E, casuarina woodland, pitfall, 30 Oct-1 Dec 2003, QM party, QM S65257; , Ransome Reserve (BCC1), 27°29'S 153°11'E, casuarina woodland, pitfall, 2-29 Jan 2004, QM party, QM S65143; ♂, Ransome Reserve (BCC1), 27°29'S 153°11'E, casuarina woodland, pitfall, 31 Mar-29 Apr 2004, QM party, QM S65256; ♂, Ransome Reserve (BCC1), 27°29'S 153°11'E, casuarina woodland, pitfall, 30 Jun-28 Jul 2003, S. Wright, E. Volschenk, QM S62624; ♂, Ransome Reserve (BCC1), 27°29'S 153°11'E, casuarina woodland, 23 Apr 2003, E. Volschenk, S. Wright, QM S62615; ♂ 2j, Ransome Reserve (BCC1), 27°29'S 153°11'E, casuarina woodland, pitfall, 1 Dec 2003-2 Jan 2004, QM party, QM S65255; ♂ ♀, Ransome Reserve (BCC1), 27°29'S 153°11'E, casuarina woodland, pitfall, 1-30 Oct 2003, QM party, QM S65258; ♂, Ransome Reserve (BCC1), 27°29'S 153°11'E, casuarina woodland, pitfall, 16 Apr-27 May 2003, C. Burwell, S. Wright, E. Volschenk, QM S62736; ♀ 3j, Ransome Reserve (BCC1), 27°29'S 153°11'E, casuarina woodland, pitfall, 30 Jan-27 Feb 2004, QM

party, QM S65254; ♂ ♀, Redland, Hilliards Ck, near South St (RHC1), 27°33'S 153°14'E, scribbly gum, open forest, pitfall, 21 Nov-19 Dec 2008, QM and BAAM, QM S86907; ♂, Redland, Hilliards Ck, near Weippin Rd (RHC2), 27°32'S 153°15'E, heath + scribbly gum, pitfall, 19 Dec 2008-19 Jan 2009, QM and BAAM, QM S79375; ♀, Split Yard Ck, 27°23'S 152°38'E, vine scrub, human dung trap, 13 Jan-7 Apr 1999, G. Monteith, G. Thompson, QM S49982; ♂, Stony Ck via Samford, 27°20'S 152°48'E, rainforest, pitfall, 22 Oct 1994-2 Feb 1995, G. Monteith, H. Janetzki, QM S51676; ♀, Taroom district, Boggomoss #12, Nathan Gorge, 25°27'S 150°08'E, baited flight trap, 13 Nov 1996- Jan 97, G. Monteith, D. Cook, QM S36264; ♂, Taroom, 9km N (BS15, traps 3, 4), 25°27'S 150°08'E, riverine rainforest, pitfall, 15 Jun 1996-12 Sep 1996, P. Lawless, QM S36962; ♀, Teviot Brook, Boonah, 27°57'S 152°33'E, rainforest, 21 Oct 1973, V. E. Davies, QM S44550; ♂ ♀, Top of Blackbutt Range, 26°52'S 152°11'E, rainforest, flight intercept trap, 24 Nov 1995-3 Feb 1996, G. Monteith, QM S60623; ♂, Tully Falls, 2 km SW, 17°47'S 145°32'E, open forest, pitfall, 5 Dec 1998-4 Feb 1999, G. Monteith, D. Cook, QM S57669; ♀ 1j, U Kroombit Ck, Kroombit Tops (Site 12), 24°25'S 151°03'E, open forest, pitfall, 12-18 Dec 1983, G. Monteith, V. Davies, J. Gallon, G. Thompson, QM S44536; ♀, Upper Tallebudgera Valley, 28°15'S 153°16'E, rainforest, pitfall, 8 Jan 1985-17 Mar 1985, Monteith, Thompson, Cook, QM S44543; ♀, West Burleigh, 2.5 km WSW, 28°07'S 153°25'E, open forest, pitfall, 28-30 Apr 2001, D. J. Cook, QM S56127; ♂, Windsor Tableland, NW O/F 1, 11.4 km past barracks, 16°12'S 144°59'E, open forest, pitfall, 24 Nov 1997-7 Feb 1998, G. Monteith, D. Cook, QM S60160; ♀, Yellow Patch, Moreton I, 27°11'S 153°24'E, pitfall, 25 Sep 1982, EIS, W. Houston, QM S44547; ♂1 , Stockhaven, 3km SE, 25°48'S 151°59'E, rainforest, pitfall, 10 Oct-19 Dec 1998, G. Monteith, C. Gough, QM S50069; ♂, Beerwah, 26°51'S 152°57'E, heathland, litter, 24 Apr 1990, QM S32140; ♂, Beerwah Forestry Reserve, 26°51'S 152°57'E, heathland, pitfall, 19 Sep 1990, M. Glover, QM S18957; ♂ 2j, Beerwah Forestry Reserve (A4), 26°51'S 152°57'E, heathland, pitfall, 24 Apr 1991, M. Glover, QM S32602; ♂, Beerwah Forestry Reserve (A5), 26°51'S 152°57'E, wallum, 4-24 Apr 1990, M. Glover, QM S16589; ♂, Beerwah Forestry Reserve (C1), 26°51'S 152°57'E, heathland, pitfall, 26 Jun 1991, M. Glover, QM S32572; ♂, Beerwah Forestry Reserve (D5), 26°51'S 152°57'E, heathland, pitfall, 21 Nov 1990, M. Glover, QM S32597; ♂ ♀ 1p, Bellthorpe-Jimna Rd, 26°43'S 152°32'E, open forest, intercept flight trap, 9 Mar-15 May 1997, G. Monteith, QM S37647; ♂, Conway NP (NQ 34a), 20°17'S 148°46'E, eucalypt woodland, pitfall, 28 Jul 1992-3 Dec 1992, R. Raven, P. & E. Lawless, M. Shaw, QM S24984; ♂ ♀, Conway NP (NQ 34a), 20°17'S 148°46'E, eucalypt woodland, pitfall, 28 Jul 1992-3 Dec 1992, R. Raven, P. & E. Lawless, M. Shaw, QM S24943; ♂ ♀, Cooloola, 26°12'S 153°03'E, dune, pitfall, oct 1977, K. Plowman, QM S39540; ♂ ♀ 1j, Emmet Ck (NQ4), 19°27'S 147°03'E, pitfall, 20 Dec 1992-12 Apr 1993, P. Lawless M. Shaw R. Raven J. Raven S. Raven, QM S32144; ♂, Ewan Maddock Dam, 26°48'S 152°59'E, open woodland, pitfall, 22 Feb-23 Jun 1993, M. Glover, QM S32150; ♂, Ewan Maddock Dam, Old homesite (site F), 26°48'S 152°59'E, pitfall, 14 Mar 1993-18 Jul 1993, M. Glover, QM S32135; ♂ ♀, Fig Tree Pocket, Brisbane, 27°28'S 153°03'E, pitfall, 1-16 Jun 1976, V. E. Davies, QM S39512; ♂ ♀, Isla Gorge, Lookout turnoff, 25°12'S 149°48'E, open forest, pitfall, 15 Dec 1997-4 Mar 1998, D. J. Cook, QM S44429; ♂, Lords Table plateau, site 2, 22°39'S 148°01'E, eucalypt woodland, pitfall, 10 Jan-7 Mar 2006, C. J. Burwell, QM S80145; ♂ ♀, Lords Table, SE base, 22°40'S 148°01'E, eucalypt woodland, pitfall, 9 Jan-4 Mar 2006, R. J. Raven, QM S80088; ♂, Lords Table, SE slopes, 22°40'S 148°01'E, vine forest, pitfall, 9 Jan-4 Mar 2006, C. J. Burwell, QM S80225; ♂, Lords Table, SE slopes, 22°40'S 148°01'E, vine forest, malaise trap, 9 Jan-4 Mar 2006, C. J. Burwell, QM S80060; ♂, Mt Castor, west slopes, 22°28'S 147°52'E, eucalypt woodland, dung trap, 12 Jan-5 Mar 2006, C. J. Burwell, QM S80023; ♂ ♀, Mt Gavial, 1km S, 23°36'S 150°29'E, open forest, pitfall, 17 Dec 1998-14 Mar 1999, D. J. Cook, QM S50056; ♂ ♀, Mt Nebo, 27°23'S 152°47'E, pitfall, 6 Nov 1978, A. Rozefelds, QM S39484; ♂, Mt Nebo, 27°23'S 152°47'E, 11 Nov 1977, A. Rozefelds, QM S39504; ♂, Mt Rose via Taroom, 25°25'S 149°58'E, vine scrub, pitfall, 16 Dec 1997-4 Mar 1998, D. J. Cook, QM S44353; ♂ ♀, North Stradbroke I, 27°35'S 153°27'E, bush, Oct 1982, J. D. Majer, QM S43698; ♂ 1j, Rochedale SF, Brisbane, 27°37'S 153°09'E, 30 Aug-6 Sep 1979, R. Raven, V. Davies, QM S44114; ♂, Rochedale SF, Brisbane, 27°37'S 153°09'E, litter, 30 Jun 1980, R. Raven, V. Davies, QM S44115; ♂ 9j, Stony Ck via Samford, 27°20'S 152°48'E, open forest, pitfall, 2 Feb-8 Apr 1995, G. Monteith, H. Janetzki, QM S32110; ♂, Stony Ck via Samford, 27°20'S 152°48'E, open forest, intercept flight trap, 22 Oct 1994-2 Feb 1995, G. Monteith, H. Janetzki, QM S50712; ♂, Windermere, nr Glenmorgan, 27°17'S 149°45'E, Dec 90-Sep 91, R. Raven, B. J. Smyth, QM S32098; ♂ ♀, Yeppoon, Bangalee Beach, 23°07'S 150°45'E, pitfall & intercept traps, 1 Dec 1992-Mar 1993, A. Walford, QM S27477; ♂ ♀, Stockhaven, 3km SE, 25°48'S 151°59'E, rainforest, pitfall, 19 Dec 1998-25 Jan 1999, G. Monteith, C. Gough, QM S50047; ♂, Beerwah Forestry Reserve, 26°51'S 152°57'E,-, M. Glover, QM S19561; ♂ 3j, Beerwah Forestry Reserve, 26°51'S 152°57'E, open

eucalypt forest, M. Glover, QM S19139; ♂, Beerwah Forestry Reserve, 26°51'S 152°57'E, open eucalypt forest, M. Glover, QM S19511; ♂, Beerwah Forestry Reserve, 26°51'S 152°57'E, heathland, pitfall, 12 Dec 1990, M. Glover, QM S19556; ♂ ♀ 1j, Beerwah Forestry Reserve (A5), 26°51'S 152°57'E, heathland, pitfall, 24 Apr 1991, M. Glover, QM S32599; ♂, Beerwah Forestry Reserve (A5), 26°51'S 152°57'E, heathland, pitfall, 26 Jun 1991, M. Glover, QM S32173; ♂, Beerwah Forestry Reserve (C2), 26°51'S 152°57'E, heathland, pitfall, 31 Oct 1990, M. Glover, QM S32575; ♂, Beerwah Forestry Reserve (C2), 26°51'S 152°57'E, heathland, pitfall, 12 Dec 1990, M. Glover, QM S32576; ♂, Beerwah Forestry Reserve (C3), 26°51'S 152°57'E, heathland, pitfall, 8 Aug 1990, M. Glover, QM S32580; ♂ ♀, Beerwah Forestry Reserve (C3), 26°51'S 152°57'E, heathland, pitfall, 21 Nov 1990, M. Glover, QM S32581; ♂ ♀ 1j, Beerwah Forestry Reserve (D2), 26°51'S 152°57'E, heathland, pitfall, 24 Apr 1991, M. Glover, QM S32590; ♂, Beerwah Forestry Reserve (D2), 26°51'S 152°57'E, heathland, pitfall, 26 Jun 1991, M. Glover, QM S32591; ♂ ♀ 1j, Beerwah Forestry Reserve (D4), 26°51'S 152°57'E, heathland, pitfall, 24 Apr 1991, M. Glover, QM S32593; ♂, Beerwah Forestry Reserve (A3), 26°51'S 152°57'E, 27 Feb 1991, M. Glover, QM S32178; ♂, Beerwah Forestry Reserve (A3), 26°51'S 152°57'E, 29 Aug 1990, M. Glover, QM S32166; ♂, Beerwah Forestry Reserve (A4), 26°51'S 152°57'E, heathland, pitfall, 25 Aug 1991, M. Glover, QM S32604; ♂, Beerwah Forestry Reserve (A5), 26°51'S 152°57'E, heathland, pitfall, 18 Jul 1990, M. Glover, QM S32600; ♂ ♀, Beerwah Forestry Reserve (C5), 26°51'S 152°57'E, pitfall, 29 Aug 1990, M. Glover, QM S32167; ♂, Beerwah Forestry Reserve (C5), 26°51'S 152°57'E, heathland, pitfall, 25 Aug 1991, M. Glover, QM S32152; ♂, Beerwah Forestry Reserve (D2), 26°51'S 152°57'E, heathland, pitfall, 27 Feb 1991, M. Glover, QM S30613; ♂ 3j, Beerwah Forestry Reserve (D2), 26°51'S 152°57'E, heathland, pitfall, 27 Feb 1991, M. Glover, QM S32595; ♂ 1j, Beerwah Forestry Reserve (D4), 26°51'S 152°57'E, heathland, pitfall, 27 Feb 1991, M. Glover, QM S32594; ♂, Blackbutt Ra summit, 5km E Benarkin, 26°52'S 152°11'E, rainforest, intercept flight trap, 24 Oct-24 Nov 1995, G. Monteith, QM S32118; ♂ 1j, Blackbutt Ra, Benarkin, 26°52'S 152°11'E, rainforest, pitfall, 11 Jan-29 Mar 1975, G. & S. Monteith, QM S39479; ♂, Bondoola (DW6, Stonier), 23°11'S 150°41'E, open forest, pitfall, 21 Mar-4 Sep 1991, D. Wallace, R. Raven, QM S32114; ♂, Bushley Stn (DW12), 23°32'S 150°15'E, open forest, pitfall, 19 Jul-22 Oct 1990, D. Wallace, R. Raven, K. Williams, QM S25609; ♂, Cabarlah, Toowoomba, 27°16'S 152°03'E, 17 Jun-18 Oct 2004, Jarred Warden, QM S75624; ♂ ♀, Camira, Ipswich, 27°38'S 152°55'E, 30 Jul 1990-31 Oct 1990, R. J. Raven, QM S19621; ♂, Camira, Ipswich, 27°38'S 152°55'E, 24 Aug 1986, R. J. Raven, QM S44546; ♂, Conondale Ra, 26°45'S 152°37'E, 17 Mar 1979, A. Rozefelds, QM S39483; ♂ ♀, Cooloola, 26°12'S 153°03'E, dune, pitfall, oct 1978, K. Plowman, QM S39485; ♂, Cooloola, Womalah SF, 25°57'S 153°06'E, rainforest, pitfall, 30 Nov 1991-8 Jan 1992, D. J. Cook, QM S25076; ♂, Edmund Kennedy NP, Whitfield Ck, 18°12'S 145°58'E, 17 Jul 1990, KR McDonald W Price C Gardner, QM S18727; ♂ ♀ 3j, Emmett Ck area S of Townsville (NQ 4/1), 19°27'S 147°24'E, pitfall, 26 Oct 1991-27 Jul 1992, P. Lawless, R. Raven, M. Shaw, QM S21939; ♂, Eurimbula Ck, via Round Hill Head, 24°12'S 151°47'E, rainforest, pitfall, 4 May-24 Jul 1975, G. & S. Monteith, QM S39500; ♂, Ewan Maddock Dam, 26°48'S 152°59'E, closed forest, pitfall, 22 Feb-23 Jun 1993, M. Glover, QM S32175; ♂, Ewan Maddock Dam, 26°48'S 152°59'E, closed forest, pitfall, 22 Feb-23 Jun 1993, M. Glover, QM S22104; ♂ ♀ 1j, Ewan Maddock Dam, 26°48'S 152°59'E, open woodland, pitfall, 23 Jun 1993-20 Nov 1993, M. Glover, QM S32130; ♂, Ewan Maddock Dam (B/4), 26°48'S 152°59'E, open forest, pitfall, 22 Aug 1993-22 Mar 1994, M. Glover, QM S28698; ♂, Ewan Maddock Dam (D/1), 26°48'S 152°59'E, closed forest, pitfall, 20 Nov 1993-22 Mar 1994, M. Glover, QM S28526; ♂, Ewan Maddock Dam (site A), 26°48'S 152°59'E, closed forest, pitfall, 27 Oct 1992-30 Jan 1993, M. Glover, QM S32153; ♂ 1P, Ewan Maddock Dam (site E), 26°48'S 152°59'E, heathland, pitfall, 14 Mar 1993-18 Jul 1993, M. Glover, QM S32244; ♂, Ewan Maddock Dam (site E/3), 26°48'S 152°59'E, heathland, pitfall, 30 Nov 1992-14 Mar 1993, M. Glover, QM S32250; ♂, Ewan Maddock Dam (site E/3), 26°48'S 152°59'E, heathland, pitfall, 21 Nov 1993-22 Mar 1994, M. Glover, QM S28518; ♂, Ewan Maddock Dam, Old homesite (site F), 26°48'S 152°59'E, pitfall, 18 Jul 1993-21 Nov 1993, M. Glover, QM S32176; ♂ 1j, Fig Tree Pocket, Brisbane, 27°28'S 153°03'E, 19 Jan-6 Feb 1980, V. E. Davies, QM S39515; ♂, Fig Tree Pocket, Brisbane, 27°28'S 153°03'E, pitfall, Apr 1983, V. E. Davies, QM S39311; ♂, Footprint Scrub, site 1, 19°41'S 146°26'E, semi-evergreen vine thicket, flight intercept trap, 8 Dec 2006-10 Feb 2007, G. Monteith, D. Cook, QM S76679; ♂ ♀, Forty Mile Scrub NP (NQ 29), 18°05'S 144°51'E, vine thicket, pitfall, 1 Dec 1992-15 Apr 1993, R. Raven P. Lawless M. Shaw J. Raven S. Raven, QM S32103; ♂, Glen Witheren Main Scrub, 28°03'S 153°10'E, rainforest, intercept flight trap, 30 Dec 1991-24 May 1992, G. Monteith, QM S32104; ♂, Glen Witheren Shelf Scrub, 28°03'S 153°10'E, rainforest, intercept flight trap, 30 Dec 1991-24 May 1992, G. Monteith, QM S32107; ♂ ♀, Glen Witheren Shelf Scrub, 28°03'S 153°10'E, rainforest, pitfall & intercept traps, 3 Oct-30 Dec 1991, G. Monteith, QM S43396; ♀, Illaweena

Street, Drewvale (BCC1), 27°38'S 153°03'E, scribbly gum, heath, pitfall, 2 Sep-2 Oct 2003, QM party, QM S62457; ♂ ♀ 2, Karawatha Forest, 27°38'S 153°05'E, pitfall, 17 Dec 1994-23 Apr 1995, D. Stewart, QM S32123; ♂ 1j, Karawatha Forest, 27°37'S 153°05'E, 17 Dec 1994, D. Stewart, QM S32155; ♂ ♀ 1j, Karawatha Forest, 27°38'S 153°05'E, 1994, David Stewart, QM S32181; ♂ 1j, Karawatha Forest, 27°38'S 153°05'E, 18 Dec 1994, David Stewart, QM S32141; ♂ 2j, Karawatha Forest, 27°38'S 153°05'E, rainforest, flight intercept trap, 1994, D. Stewart, QM S32160; ♂ ♀, Karawatha Forest, 27°37'S 153°05'E, 17 Dec 1994, D. Stewart, QM S32168; ♂ 1j, Karawatha Forest, 27°37'S 153°05'E, melaleuca, pitfall, 17 Dec 1994-23 Apr 1995, D. Stewart, QM S32146; ♂ ♀, Kroombit Tops (site 3), 24°22'S 151°01'E, open forest, pitfall, 10-18 Dec 1983, G. Monteith, V. Davies, J. Gallon, G. Thompson, QM S44539; ♂, Mt Coot-tha, Brisbane, 27°29'S 152°57'E, wet sclerophyll, pitfall, 22 Dec 1979-17 Jan 1980, R. J. Raven, QM S39508; ♂, Mt Coot-tha, Brisbane, 27°29'S 152°57'E, pitfall, 23 Feb-5 Apr 1980, R. J. Raven, QM S39510; ♂ ♀, Mt Coot-tha, Brisbane, 27°29'S 152°57'E, pitfall, 1-22 Dec 1979, R. J. Raven, QM S39501; ♂ ♀, Mt Coot-tha, Brisbane, 27°29'S 152°57'E, open forest, pitfall, 17 Dec 1996, R. J. Raven, QM S41166; ♂ ♀, Mt Coot-tha, Brisbane, 27°29'S 152°57'E, litter, 6 Jun 1980, R. Raven, V. Davies, QM S39486; ♂, Mt Coot-tha, Brisbane, 27°29'S 152°57'E, pitfall, 17 Jan-8 Feb 1980, R. J. Raven, QM S44548; ♂, Mt Coot-tha, Brisbane, 27°28'S 153°01'E, litter, 1 Feb 1980, R. Raven, V. Davies, QM S39507; ♂, Mt Gavial, 3km SSE, 23°37'S 150°29'E, open forest, pitfall, 18 Dec 1998-14 Mar 1999, D. J. Cook, QM S49988; ♂, Mt Nebo, 27°23'S 152°47'E, mixed sclerophyll, pitfall, 16 Oct 1978, A. Rozefelds, QM S39481; ♂, No data,.01,, QM S25647; ♂, Olsen's Caverns (DW8), 23°10'S 150°28'E, open forest, pitfall, 30 Sep 1991-10 Nov 1991, D. Wallace, R. Raven, P. Lawless, QM S32622; ♂ ♀, Pilgrim Sands, 16km N (NQ 23), 16°00'S 145°26'E, pitfall, 20 Jul-28 Nov 1992, R. Raven, P. & E. Lawless, M. Shaw, QM S24456; ♂, Rochedale SF, Brisbane, 27°37'S 153°09'E, forest, pitfall, 03-17 Apr 1980, R. Raven, V. Davies, QM S44113; ♂ ♀ 2j, Rochedale SF, Brisbane, 27°37'S 153°09'E, pitfall, 20 Sep 1979, R. Raven, V. Davies, QM S44119; ♂ 2j, Rochedale SF, Brisbane, 27°37'S 153°09'E, pitfall, 7 Aug-21 Aug 1980, R. Raven, V. Davies, QM S44116; ♂ ♀, Rocky Pt, S Miriamvale, 24°20'S 151°34'E, rainforest, pitfall, 28 Aug-15 Dec 1976, G. & S. Monteith, QM S39498; ♂, Russell River NP, 17°18'S 145°57'E, pitfall, 24 Jul-25 Nov 1992, R. Raven, P. & E. Lawless, M. Shaw, QM S21746; ♂ ♀ 2j, Spider Ck, 25km S Koumala (NQ40), 21°53'S 149°22'E, eucalypt woodland, pitfall, 29 Jul-24 Nov 1992, R. Raven, P. & E. Lawless, M. Shaw, QM S24904; ♂ 1j, Split Yard Ck, 27°23'S 152°38'E, vine scrub, human dung trap, 27 Dec 1998-13 Jan 1999, Monteith, Thompson, Cook, QM S50098; ♂, Stockyard Pt, Byfield, 22°47'S 150°47'E, pitfall & intercept traps, Jan-Mar 1993, A. Walford, QM S44533; ♂, Stradbroke I, 27°35'S 153°27'E, 22 Aug 1974, J. Covacevich, QM S39509; ♂ ♀, Taroom district, Boggomoss (No.3), 25°26'S 150°01'E, pitfall, 12 Nov 1996-12 Jan 1997, G. Monteith, D. Cook, QM S36320; ♂ ♀, Taroom district, Nathan Gorge, 25°27'S 150°08'E, riverine rainforest, pitfall, 13 Nov 1996-13 Jan 1997, P. Lawless, QM S36608; ♂, Upper Hall Ck via Camila, 21°52'S 149°18'E, open forest, pitfall, 4 Dec 1996-6 Apr 1997, G. Monteith, E. Maulder, QM S44534; ♂, Windsor Tbld, SE, 16°18'S 145°05'E, open forest, pitfall, 25 Nov 1997-9 Feb 1998, G. Monteith, D. Cook, QM S44718; ♂, Wyandotte Ck (NQ 30), 18°29'S 144°55'E, eucalypt woodland, pitfall, 1 Dec 1992-14 Apr 1993, R. J. & S. Raven, P. & E. Lawless, QM S24162; ♂, Yeppoon, Newtons Pty, 23°08'S 150°45'E, 4 Sep 1991, R. Raven, P. Lawless, D. Wallace, QM S32101.